GOVERNMENT OF INDIA

MINISTRY OF COMMERCE

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# REPORT OF THE

# INDIAN TARIFF BOARD

ON THE

## REVISION OF FAIR PRICES OF SUPERPHOSPHATE

BOMBAY 1951

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## PERSONNEL OF THE BOARD

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MR. B. N. ADARKAR, M.A. (CANTAB.).—*Member.*

MR. M. A. MULKY, M.SC. (ECON.), LONDON—*Secretary.*

## PERSONNEL OF THE PANEL WHICH HEARD THE CASE

DR. H. L. DEY, D.SC. (LOND.).—*President.*

MR. B. N. ADARKAR, M.A. (CANTAB.).—*Member.*

## MINISTRY OF COMMERCE AND INDUSTRY

## RESOLUTION

(TARIFFS)

*New Delhi, the 27th March* 1951

**No. 3-T(1)/51.**—The Tariff Board was asked to advise as to the prices to be paid for superphosphate produced by the various factories which are members of the Central Phosphate Pool for the periods (1) 14th March, 1950, to 31st December, 1950, and (2) 1st January, 1951 to 31st December, 1951. The Board having made necessary enquiries has recommended that the fair prices f.o.r. the nearest railway station per ton should be as follows:—

| Name of Firm | Fair prices for March—December 1950 | Fair prices for 1951 |
|---|---|---|
| | Rs. | Rs. |
| 1. Fertilisers & Chemicals (Travancore) Ltd., Alwaye | 193 | 210 |
| 2. Parry & Co. Ltd., Madras | 193 | 210 |
| 3. Dharamsi Morarji Chemical Co. Ltd., Bombay | 193 | 210 |
| 4. Sonawala Industries, Bombay | 193 | 210 |
| 5. Western Chemical Industries, Bombay | 193 | 210 |
| 6. Eastern Chemical Co. (India), Bombay | 193 | 210 |
| 7. D. C. M. Chemical Works, Delhi | 226 | 241 |
| 8. National Fertilisers Ltd., Poona | 232 | 218 |
| 9. Hyderabad Cheomical and Fertilisers Ltd., Belampalli, Hyderabad (Deccan) | 213 | 226 |
| 10. Anil Starch Products Ltd., Ahmedabad | 208 | 224 |
| 11. Mysore Chemicals & Fertilisers Ltd., Mysore | 208 | 218 |
| 12. Phosphate Company Ltd., Calcutta | 216 | 244 upto 30th June, 1951 and 210 from July to 31st December, 1951. |
| 13. Premier Chemical Industries, Mysore | 228 | 255 |

The Board recommends that on the basis of the above prices any excess payments to factories should as far as practicable be adjusted in payments to be made to them for future supplies.

2. The Government of India accept the recommendations of the Board and steps have been taken to implement them.

3. The Board has also made several ancillary recommendations. They are being examined by Government.

S. BHOOTHALINGAM,
Joint Secy. to the Govt. of India.

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# REPORT ON SUPERPHOSPHATE PRICES

**Reference to the Board.**

In October 1948, the Government of India in the Ministry of Agriculture decided to constitute a Central Phosphate Pool, wih a vief to making supplies of superphosphate available to the cultivator at reasonable prices The object was to be achieved by importing superphosphate under the aegis of the Ministry of Agriculture on behalf of the Central Phosphate Pool and buying the indigenous output of the fertiliser on the basis of the actual costs of production, and then selling both the imported and the indigenous superphosphate to the State Governments and others at a uniform "pool price" fixed on a "no profit, no loss" basis. In order to operate this scheme, it was essential to determine the fair and reasonable price or prices at which Government should purchase superphosphate from the various factories in India. Accordingly, the Government of India in the Ministry of Commerce, by their Resolution No. 3-T(4)/48 dated 13th October 1948, requested the Tariff Board to conduct the necessary enquiries and recommend such prices. The Board submitted its Report on 14th April 1949, and although the Central Phosphate Pool had started functioning in February, 1949, the prices recommended by the Board were made applicable to all the deliveries of superphosphate made by the Indian manufacturers from the commencement of the Pool. The Board had recommended that if, during any half-year, the costs of production increased by Rs. 10 or more per ton of superphosphate owing to an increase in the cost of sulphur or rock phosphate, the industry might apply to Government for a revision of prices, and that in the event of a decrease in costs by Rs. 10 or more, Government should review the position. The occasion for such review arose in February 1950 when, at a meeting of the Superphosphate Advisory Panel, which was constituted by the Ministry of Agriculture in accordance with one of the recommendations of the Board, the manufacturers recognised that the costs of production of superphosphate had declined owing to a fall in the price of rock phosphate and certain other factors and agreed to consider the question of making a suitable reduction in the price of the finished product on that account The following eight out of the eleven members of the Pool offered a reduction in the prices paid to them by Rs. 14 per ton with effect from 14th March 1950:

(1) Parry & Co. Ltd., Madras.

(2) Dharamsi Morarji Chemical Co. Ltd., Bombay.

(3) Anil Starch Products Ltd., Ahmedabad.

(4) D. C. M. Chemical Works. Delhi.

(5) Fertilisers & Chemicals, Travancore Ltd., Alwaye.

(6) Sonawala Industries Ltd., Bombay.

(7) Western Chemical Industries, Bombay.

(8) National Fertilisers Ltd., Poona.

The remaining three membres, namely, the Hyderabad Chemicals and Fertilisers, Ltd., Hyderabad, the Eastern Chemical Co., Bombay, and the Mysore Chemicals and Fertilisers Ltd., Mysore, did not agree to any reduction in their price. Since the Government of India were not in possession of the necessary details of the cost of production of superphosphate to enable them to verify the reasonableness or otherwise of the reduction of Rs. 14 per ton offered by the 8 members, they decided to accept the reduction offered by these members provisionally and requested the Board, by the Ministry of Commerce letter No. 3-T/A(1)/50 dated the 20th April 1950 (Appendix I), to advise Government as to the cost of production of superphosphate during the period from March to June 1950, so as to enable Government to make the necessary adjustments, if any, in the prices paid to manufacturers in that period. By the same letter, the Board was also asked to recommend the prices to be paid to indigenous manufacturers of superphosphate within the Pool from July 1950 onwards. Subsequent to the formation of the Pool, two more firms, namely, the Phosphate Co., Ltd., Calcutta, and the Premier Chemicals, Mysore, were provisionally admitted to the Pool and these had also agreed to accept prices based on the reduced price of Rs. 196 per ton for port factories provisionally subject to adjustment on the recommendation of the Board. Two other firms, namely, the Alembic Chemicals and the Star Chemicals, both of Baroda, had applied for admission to the Pool, and the Board was requested to determine the prices to be paid to them also. At the public inquiry, following a suggestion made by the representative of the Ministry of Agriculture, the manufacturers agreed that since the allocations of superphosphate were now being made on a calendar year basis, the Board should recommend prices for the periods from 14th March (the date from which payments are being made on a provisional basis) to 31st December 1950 and from January to December 1951. The suggestion was communicated to the Government of India in the Ministry of Commerce, who by their letter No. 3-T/A(1)/50 dated 26th December 1950 (Appendix II), authorised the Board to recommend prices for these periods.

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**Method of inquiry.**

2. On 15th July 1950, the Board addressed a letter to 15 superphosphate factories requesting them to submit details of the cost of production during the period from March to June 1950 and estimates for the period from July 1950 to June 1951. A special questionnaire on the various aspects of the industry was issued on 1st August 1950. Appendix III contains a list of those to whom the letter and the questionnaire were issued and those who replied thereto. Statistics of c.i.f. prices and landed costs of rock phosphate and sulphur were obtained from importers and the data regarding the existing freight rates on these materials from the B. B. & C. I., the G. I. P., the M. S. M. and the E. I. Railways. The Ministry of Agriculture furnished the Board with detailed memoranda describing the working of the Phosphate Pool. Dr. H. L. Dey, President, and Dr. B. V. Narayanaswamy Naidu, Member, visited the factory of the Fertilisers and Chemicals (Travancore) Ltd., on 26th September 1950. The factory of the D. C. M. Chemical Works, Delhi, was costed in July 1950 by Mr. S. V. Rajan, Assistant Cost Accounts Officer and those of the following four firms, namely, the Dharamsi Morarji Chemical Co., Ltd., Ambarnath, Bombay, the Fertilisers and Chemicals (Travancore) Ltd., Alwaye, Parry & Co., Ltd., Ranipet, Madras, and the Hyderabad Chemicals and Fertilisers,

Ltd., Bellampalli, Hyderabad, were costed in August 1950 by Mr. R. Sundaram, Cost Accounts Officer. A public inquiry was held at the Board's office in Bombay on 15th and 16th November 1950. A list of those who attended the inquiry and gave evidence is given in Appendix IV.

**Development of superphosphate industry in India.**

3. (a) *Present productive capacity.*—A brief description of the development of the superphosphate industry in India up to the time of the last inquiry will be found in paragraph 4 of the Board's previous Report on this industry. At that time, there were in all eleven factories in India engaged in the manufacture of superphosphate, with an installed capacity of 81,000 tons per annum. Since then, the industry has achieved an appreciable measure of expansion, both by way of additions to the productive capacity of some of the existing units and by way of the establishment of new units. Although the capacity of the industry for the production of sulphuric acid has increased from 61,400 tons in 1949 to 61,992 tons only in the current year, its capacity for the production of superphosphate has increased from 81,000 tons to 143,850 tons. As stated earlier, two new factories, namely, the Phosphate Company Ltd., Calcutta and the Premier Chemical Works, Mysore, have now been provisionally admitted to the Pool. Of these, the former came into production in July 1950, while the latter, though established in 1944, was only manufacturing to order on a small scale of about 100 tons per annum and has only recently increased its production. Both the firms are at present manufacturing superphosphate from sulphuric acid purchased from other manufacturers. The Phosphate Company, Ltd., however, has already ordered its sulphuric acid plant and expects to commence the manufacture of sulphuric acid by the middle of 1951. The rated capacity of the Phosphate Company is 12,000 tons of superphosphate and that of the Premier Chemical Works 6,000 tons. A new unit, the Alembic Chemical Works Ltd., Baroda, with a capacity of 3,000 tons of sulphuric acid and 8,100 tons of superphosphate, is expected to come into production early in 1951. The firm is expected to commence production of sulphuric acid in the third week of January 1951. Another unit, the Star Chemical Works, Baroda, has declared its readiness to put up a plan for the manufacture of 1,800 tons of superphosphate, if it is included in the Pool. There is also a factory called the Petlad Turkey Red Dye Works, Ltd., at Petlad, Bombay, with a capacity of 780 tons of sulphuric acid and 360 tons of superphosphate, but its actual production is very small. Thus, the total number of factories regularly engaged in the production of superphosphate at present is 13, as compared with 11 at the time of the last inquiry. Figures of rated capacity of the various firms as furnished by them are given in Appendix V and these may be compared with the corresponding figures given in Appendix V to the previous Report. In the case of most of the manufacturers, the figures now declared are higher than those declared at the time of the last inquiry.

(b) *Expansion projects.*—Many of the manufacturers have plans for expansion of their factories for increased production of superphosphate. Messrs. Parry & Co., Ltd., have ordered a modern den for the manufacture of superphosphate and this is expected to increase their productive capacity from 10,000 tons to 13,250 tons in 1951 and 25,000 tons in

1952. They have plans for the addition of a contact sulphuric acid plant with a capacity of 9,000 tons and will shortly instal a grinding mill for crushing rock phosphate. The Fertilisers and Chemicals (Travancore) Ltd., who have so far been manufacturing superphosphate from locally fabricated equipment, have now installed a new plant with a capacity of 150 tons of superphosphate per day. This new plant can, however, attain its peak production only when the firm is able to expand its production of sulphuric acid for which a plant with a capacity of 67 tons of 100 per cent. acid per day is being erected. The firm hopes that its capacity for the production of sulphuric acid will increase from 23,600 tons to 37,000 tons in 1951 and 42,500 tons in 1952 and that for the production of superphosphate from 14,000 tons to 40,000 tons in 1951 and 50,000 tons in 1952. The National Fertilisers have entered into an arrangement with a new company called the West India Chemicals, Ltd., for the erection of a sulphuric acid plant with a capacity of 3,400 tons at the site of their superphosphate factory at Poona. The plant is expected to go into production by the end of December 1950 and the National Fertilisers have stated that their capacity for the production of superphosphate will then increase from the present figure of 4,000 tons to 12,000 tons. Messrs. Sonawala Industries, Ltd., which hitherto had a capacity of 1,500 tons of superphosphate have put up a plant with a capacity of 8,000 tons of superphosphate (on single shift). It is understood that the Bihar Government is also putting up a superphosphate plant for producing 20,000 tons of superphosphate per annum.

(c) *Production.*—Production of superphosphate in India showed a progressive increase from 1947 to 1949. In 1947, the total quantity of superphosphate produced in India amounted to 13,794 tons only. It increased to 22,438 tons in 1948, and 50,641 tons in 1949. During the first nine months of 1950, the 13 factories within the Pool produced 33,674 tons (See Appendix V). During the second half of 1949 and the first half of the current year, the majority of manufacturers were left with heavy stocks owing to the failure of a number of State Governments to lift the quantities allotted to them by the Pool, and this resulted in some slowing down of production. In recent months, however, the offtake has improved, and it is consequently expected that production over the whole year may not fall below the level attained in 1949. According to present indications, the industry will have enough capacity to step up production to 134,000 tons in 1951 and to about 167,000 tons in 1952, but since virtually the entire output of superphosphate is now sold to the Pool, the level of output which the industry can actually attain within these figures will depend on orders received from the Pool.

(d) *Demand.*—Before World War II, the total consumption of superphosphate in India was estimated at about 10,000 tons a year, between 6,000 and 7,000 tons being imported from abroad. During the post-war period, there has been a growing awareness on the part of the Central and the State Governments of the importance of encouraging the use of this fertiliser as a means of increasing agricultural production, and the Ministry of Agriculture and the State Governments have been taking various measures in that direction. As a result of these measures, as well as of the efforts made by individual manufacturers, the consumption of superphosphate has increased, but for various reasons which will be explained later, the results did not come up to expectations during 1948-

49 and 1949-50. The Ministry of Agriculture had estimated the total requirements of the Indian Union at 48,000 tons during the 12 months ended 30th June 1949 and had fixed a consumption target for superphosphate and bonemeal at 100,000 tons per year for the following five years. Actual despatches of superphosphate from the factories amounted to only 6,538 tons during February to June 1949, and 34,202 tons during July 1949 to June 1950. In addition, it has been estimated that approximately 4,000/5,000 tons of bonemeal and crushed bones are used in the country. The demand for superphosphate has, however, shown a marked improvement of late. On the basis of the requirements actually indicated by the States and the tea and coffee plantations, the Ministry of Agriculture has estimated the demand in 1951 at 75,000 tons, of which 27,000 tons will be required in the first half of 1951 and the rest in the second half, the bulk of the requirements of the Madras State and the tea and coffee plantations being deliverable during the second half. It is expected that there may be additional demands from certain States and from the Malwa Development Board, and in that event, the total demand in 1951 may be much higher than 75,000 tons. It has been stated on behalf of the Ministry of Agriculture that the demand during the remaining period of 1950 and the next year may prove to be much larger than the industry can meet without difficulty. In the light of the figures of rated capacity as declared by the factories, this statement would not appear to be strictly accurate, but it seems very probable that the demand for superphosphate in the immediate future will be such as to permit an appreciable increase in output. Indeed, the potential requirements of the country for superphosphate are much larger than the consumption target of 100,000 tons which was fixed in 1949 by the Ministry of Agriculture for the five years ending 1953-54. An estimate given in a note prepared by the Industries Division of the Planning Commission places the annual demand for phosphatic fertilisers at 3,20,000 tons of $P_2O_5$ (equivalent to 2 million tons of 16 per cent. superphosphate) at the minimum. Against this quantity, the present productive capacity of the industry is only 23,000 tons of $P_2O_5$. It is clear, therefore, that the industry has an appreciable scope for expansion. The expansion, however, presupposes a far more intensive propaganda for the use of phosphatic fertilisers than has hitherto been undertaken and since superphosphate has to be used in combination with sulphate of ammonia, any plans for augmenting the production of superphosphate have to be correlated with the production and import possibilities in regard to sulphate of ammonia. Taking all these factors into account, the Fertilisers Sub-Committee of the Planning Commission has recently fixed the immediate target for the production of superphosphate at not less than 2 lakh tons to be attained by the end of 1955. This would mean an increase of nearly 40 per cent. in the productive capacity of the industry.

**Desirability of encouraging the production and consumption of triple superphosphate.**

4. Messrs. Shaw Wallace & Co., a leading importing firm, have drawn our attention to an important aspect of the future development of the phosphatic fertiliser industry in this country. The firm has stated that prior to the second World War, the Indian cultivators had become accustomed to utilising appreciable quantities of compound fertilisers, such as Nicifos and Ammophos, which enabled them at one application to apply to the land both nitrogen and phosphoric acid, whereas in the early days the cultivators had used sulphate of ammonia and superphosphate.

These compound fertilisers were appreciably more economical to the cultivators by virtue of the cheaper initial cost per unit of nitrogen and phosphoric acid, and by reason of savings in transport and handling. The compound fertilisers are, however, no longer freely available, but concentrated or triple superphosphate is available, and mixtures of nitrogen and phosphoric acid made by using triple superphosphate are more economical than those made by using single superphosphate. Messrs Shaw Wallace have pointed out that the cost of 16 per cent $P_2O_5$ superphosphate at Rs. 247 per ton delivered to the tea gardens in Assam (Rs. 207 ex-works price, plus Rs. 40 transport and handling charges), works out to Rs. 15-8-0 per unit of phosphoric acid, while that of triple superphosphate containing 42 per cent $P_2O_5$ at the current quotation of £28-13-3 per ton c.i.f. Indian port or Rs. 424 delivered to the tea gardens comes to Rs. 10 per unit of phosphoric acid. Triple superphosphate is not at present allowed to be imported into India and the firm has suggested that imports of this fertiliser should be permitted until its manufacture is established in the country. The firm has also requested the Board to consider the price of single superphosphate in relation to that of triple superphosphate and the economic soundness of the present policy of encouraging the manufacture of single superphosphate by precluding imports of triple superphosphate. All the superphosphate factories in India are at present equipped for the manufacture of single superphosphate only, and the Board has no data as to what the likely cost of production of triple superphosphate would be in the conditions obtaining in this country. The Board is advised, however, that in the long run, the production of dicalcium phosphate and triple superphosphate is likely to be more economical than that of single superphosphate. The estimates of India's total requirements of phosphatic fertilisers made by the Industries Division of the Planning Commission and referred to in the preceding paragraph have been expressed in terms of $P_2O_5$ only, and it is still too early to say whether these requirements should be met by using single superphosphate, dicalcium phosphate, triple superphosphate or compound fertilisers, such as Ammophos or Nicifos. For this purpose, an investigation needs to be carried out as to the country's requirements for different types of fertilisers, having regard to the actual soil and climatic conditions in different parts of the country and the requirements of different crops. Any plans for the future development of the fertiliser industry may have to be modified in the light of the results of such investigation. Even if it is found desirable, as the result of such investigation, to encourage the production of dicalcium phosphate or triple superphosphate in future, there would still remain considerable scope for the expansion of the single superphosphate industry, because the target of 2 lakh tons of 16 per cent $P_2O_5$ superphosphate equivalent to 32,000 tons of $P_2O_5$ to be attained by the industry by 1955, represents a small proportion of the potential demand for phosphatic fertilisers in the country, which has been estimated at 320,000 tons of $P_2O_5$ and the Board is advised that the potential requirements for single superphosphate are not likely to fall below 32,000 tons of $P_2O_5$. The Board, therefore, does not think that anything should be done at this stage to halt the further expansion of the single superphosphate industry. As regards the suggestion made by Messrs. Shaw Wallace that imports of triple superphosphate should be allowed so long as this fertiliser is not manufactured in the country, the Board feels that since the domestic superphosphate industry has enough productive capacity to meet the existing demand for phosphatic fertilisers, a diversion of any part of this demand to an imported variety of phosphatic fertilisers will adversely affect the development of this industry. The Board is, therefore, of the opinion that imports of triple superphosphate should not be allowed for the present.

**Raw materials.**

5. (a) At the time of the last inquiry, superphosphate was being manufactured in India principally from imported rock phosphate, but to a small extent from indigenous bones also. In this connection, the Board had occasion to refer to Government's policy to encourage the manufacture of superphosphate from imported rock phosphate in preference to bones which fetch a higher price in the world markets than what the imported rock phosphate costs to India. From the evidence received by the Board, it appears that all the superphosphate factories in India have now switched over to the use of rock phosphate. Since the time of the last inquiry, however, the industry has been experimenting with different varieties of rock phosphate with a view to keeping down the cost of this raw material which constitutes an important element in the cost of production of superphosphate. In place of Moroccan phosphate, which was used extensively until the early part of 1950, the industry has of late been using different varieties of phosphate principally Kossier, imported from Egypt and one of the factories, namely, Parrys has also been experimenting, with Makatea phosphate imported from the Makatea Islands in the Pacific.

(b) Besides rock phosphate, the industry also consumes large quantities of sulphur which is needed for the manufacture of sulphuric acid, that being the first stage in the production of superphosphate. With regard to sulphur, the industry is at present greatly concerned about the prospects of securing its requirements from abroad at an economic price. Sulphur has so far been imported from the United States, which is the cheapest source of supply. Owing to an unprecedented increase in the internal demand in that country, exports of sulphur from the United States have recently been drastically cut down, with the result that the Indian industry has not been able to effect any purchases of American sulphur for the last three months. American exporters have declined to enter into any forward commitments for 1951 also. If the United States producers cut down their supplies to India in the same proportion in which they propose to reduce their deliveries to the United Kingdom and the European Continent, India may not be able to secure more than 25,000 tons of sulphur from the States. The annual requirements of the superphosphate industry alone for an output of 100,000 tons of superphosphate are 15,000 tons of sulphur. Actual imports of sulphur into India amounted to 39,400 tons during 1949 and 26,000 tons during the first 8 months of 1950. The Board understands that the matter is engaging the attention of both the Government of India and the industry itself, and efforts are being made to secure a larger quantity of sulphur from the United States. The manufacturers have stated that whatever quantity of American sulphur is eventually allotted to India, it is not likely to be available for shipment before April 1951, *i.e.*, it may not be in the hands of the industry before July 1951. The present stocks of sulphur with the industry are expected to last till the end of February 1951 only; and since it is customary for the industry to provide for its raw material requirements for at least six months ahead, the industry will have to tap alternative sources by the end of this year to cover its requirements for the remaining four months of the first half of 1951. The only alternative source of supply is Italy, and the Board understands that most of the large manufacturers have recently been purchasing sulphur from that country. The European countries, Australia and others previously dependent on the United States have also been placing large orders on Italy. Consequently, Italian sulphur, which is always costlier than American sulphur, is now being quoted at more than two and a half times the price of the latter. The current price of Italian sulphur, 98 per cent grade, is £22-13-9 per short ton f.o.b. Sicilian port, which works out to Rs. 415·8 per long ton c.i.f. Bombay for 99·5 per cent. grade. The cost of American sulphur, 99·5 per cent. grade, is Rs. 163·2 per long ton c.i.f. Bombay. According to the information received from the Commercial Counsellor for India in Italy, 24,000 tons of sulphur are likely to be available to India from that country. Judging from the present world situation, it does not seem likely that the difficulties in obtaining sulphur from the United States will be substantially alleviated by the end of the current year and hence, in calculating the fair ex-works costs of superphosphate for 1951, we have assumed that the industry will be using American sulphur out of its present stocks during the first two months of 1951 and Italian Sulphur during the subsequent four months and that American sulphur will be available for use from July 1951 onwards. Should these expectations not materialise, suitable adjustments will have to be made in the ex-works price for superphosphate recommended by the Board for 1951.

[See paragraph 7(j) below].

**General considerations in regard to price fixation.**

6. The general considerations which arise in regard to the fixation of prices of superphosphate have been set out in paragraph 11 of the Board's previous Report. The Board has reviewed the question, but sees no reason to modify the conclusion reached in that paragraph, namely, that the price fixed should be such as would enable production to be increased, without inflating the profits of the supra-marginal firms, or unduly increasing the cost to the cultivator. The Pool system, under which different prices are paid to different units and the output of all is sold at an average pool price, permits the various units whose costs of production differ for reasons beyond their control (such as the differences in the freight on raw materials), to remain in production. This is desirable, since superphosphate is an essential fertiliser and it is one of the objects of the Pool to see that the production of superphosphate does not suffer through the free play of competitive forces. At the same time, the Board does not think that it is the intention of the Pool to enable even the most backward or uneconomical units to continue with their inefficient or costly methods of production, by granting them a high ex-works price, since the effect of doing so may be to inflate the pool price to a level at which it will be beyond the capacity of the average cultivator to pay, and thus, defeat the other equally important object of the Pool, namely, to encourage the consumption of superphosphate. The Board has, therefore, adopted the method of computing the cost of production of a representative unit which is neither the most nor the least efficient and neither too old nor too new, and applying it to the industry as a whole, with suitable adjustments for transport and incidental charges on raw materials from the port to the factory and on superphosphate from the factory to the nearest railway station, which vary according to the location of the units. It

will be seen, that the principle underlying the Joint Memorandum submitted by the manufacturers (Appendix IX) is also substantially the same. The alternative course of costing each individual factory separately was in any case subject to various practical difficulties and would have made it impossible for the Board to submit its Report within a reasonably short time. The Board is also satisfied that the method now adopted is in some respects preferable to that adopted on the last occasion, when a uniform price based on an average of the estimated costs for three factories, namely, the Fertilisers and Chemicals (Travancore) Ltd., the Dharamsi Morarji Chemical Co. Ltd. and Parry and Co. Ltd. was fixed for port factories, and this was made applicable to a'l inland factories, subject to adjustments for the transport charges incurred by them on two raw materials, namely, sulphur and rock phosphate.

**Costs of production and fair prices of superphosphate.**

7. (a) The Board was originally requested to recommend the fair prices of superphosphate for the periods (i) March-June 1950 and (ii) from July 1950 onwards. Since, however, allocations of superphosphate are now being made on a calendar year basis, it was considered that fixation of superphosphate prices on a similar basis would be more convenient to both manufacturers and indentors, and following a suggestion to this effect made at the public inquiry by the representative of the Ministry of Agriculture and supported by manufacturers, the Government of India requested the Board to recommend prices of superphosphate for the periods (i) 14th March to 31st December 1950 and (ii) January to December 1951.

(b) For the purpose of determining the fair ex-works costs of production of superphosphate, the Board invited the cost of production data relating to all the factories engaged in the production of this article. The Cost Accounts Officer attached to the Board examined the accounts of the following five factories and worked out the cost of production of sulphuric acid and superphosphate for them:—

(1) Dharamsi Morarji Chemical Co., Ltd.;

(2) Fertilisers and Chemicals (Travancore) Ltd.;

(3) Parry and Co., Ltd., for superphosphate and the East India Distilleries, Ltd., for sulphuric acid;

(4) D. C. M. Chemical Works; and

(5) Hyderabad Chemicals and Fertilisers, Ltd.

Of these, the cost accounts of all the factories, except the last mentioned one were examined on the last occasion also. The cost of production data relating to the Hyderabad Chemicals and Fertilisers, Ltd. was then not examined, because the firm had then just started the manufacture of superphosphate from rock phosphate. The firm was now selected for cost investigation, because it has now been using rock phosphate for a sufficiently long period, and further, it is one of the three units which had not agreed to the reduction in the price of superphosphate by Rs. 14/- per ton agreed to by other units, [the other two dissenting units being the Eastern Chemical Co. (India), Bombay, and the Mysore Chemicals and Fertilisers, Ltd., Mysore]. Following the original terms of reference, the Cost Accounts Officer worked out the cost of production for the five costed firms for (i) the calendar year 1949 and (ii) the first half of 1950

He also prepared estimates for the year ended 30th June 1951. At the public inquiry, the manufacturers presented a Joint Memorandum (Appendix IX) giving certain cost estimates for the industry as a whole for January to June 1950, July to December 1950 and January to June 1951. It was agreed at the public inquiry that in determining prices, the Board should take into account the estimates contained in the Joint Memorandum, those furnished by individual manufacturers and those prepared by the Cost Accounts Officer. Certain technical and other questions arising from the cost investigation were also separately discussed with some of the leading manufacturers.

(c) The Board first examined in detail the cost of production data submitted by the Cost Accounts Officer for the five costed units, and then proceeded to work out the costs of production of a notional representative unit, on the basis of the principles explained in paragraph 6 above, and having due regard to the further data made available by the manufacturers in their Joint Memorandum and at the public inquiry and those furnished by the non-costed units. The cost of production data, whether of the costed units or of a notional representative unit, may be divided into the following heads: (a) cost of materials, excluding internal transport charges and incidental expenses, (b) conversion charges (*i.e.* power and fuel, labour, repairs and maintenance, consumable stores, establishment and other overheads), (c) Packing charges and (d) other charges (interest on working capital, depreciation, return on block and managing agents' commission). Estimates were prepared for the costed units under the above four heads for (i) sulphuric acid and (ii) superphosphate. Transport charges and incidental expenses on raw materials and delivery charges on superphosphate from factory to the nearest railway station vary from factory to factory according to its location and were, therefore, computed separately. The factories which draw their supplies of raw materials from Bombay have to incur higher clearing expenses as compared with those which use the Madras Port and differences arising from this fact were also calculated separately.

(d) The following tables show the cost of production of sulphuric acid and superphosphate in the five costed units for the period from 14th March to 31st December 1950.

## TABLE I

*Statement showing the Board's estimate of cost of production per ton of sulphuric acid (100%) for the five firms costed for the period 14th March to 31st December 1950.*

(Excluding transport charges on raw materials from the port to the factory)

| Name of firm | Fertilisers and Chemicals (Travancore) Ltd. | East India Distilleries Ltd. | Dharamsi Morarji Chemical Co., Ltd. | | | D. C. M. Chemical Works. | | | Hyderabad Chemicals and Fertilisers Ltd. |
|---|---|---|---|---|---|---|---|---|---|
| Method of manufacture | Contact | Chamber | Chamber | | Contact | Chamber | | Contact | Chamber |
| | Rs. | Rs. | Rs. | | Rs. | Rs. | | Rs. | Rs. |
| 1. Raw materials : | | | | | | | | | |
| (a) Sulphur | 62.72 | 62.72 | 62.72 | | 62.72 | 62.72 | | 62.72 | 62.72 |
| (b) Wastage on above @ 10% | 0.63 | 0.63 | 0.63 | | 0.63 | 0.63 | | 0.63 | 0.63 |
| (c) Total | 63.35 | 63.35 | 63.35 | | 63.35 | 63.35 | | 63.35 | 63.35 |
| (d) Nitre | .. | 6.27 | 6.27 | | .. | 6.27 | | .. | 6.27 |
| (e) Total raw materials | 63.35 | 69.62 | 69.62 | | 63.35 | 69.62 | | 63.35 | 69.62 |
| 2. Conversion charges | 21.35 | 46.42 | 38.70 | (37.34) | 35.88 | 45.16 | (44.54) | 44.17 | 42.12 |
| 3. Total of 1 and 2 | 84.70 | 116·04 | 108.32 | (103.93) | 99.23 | 114.78 | (110.26) | 107.52 | 111.74 |
| 4. Depreciation | 18.67 | 4.09 | 11.36 | (14.25) | 17.35 | 11.93 | (11.48) | 11.20 | 35.37 |
| 5. Interest on working capital | 2.04 | 2.40 | 2.35 | (2.33) | 2.30 | 2.50 | (2.40) | 2.34 | 2.85 |
| 6. Return on block | 15.88 | .. | 21.46 | (18.93) | 16.22 | 17.76 | (16.33) | 15.47 | 46.36 |
| 7. Total of 3—6 | 121.29 | *122.53 | 143.49 | (139.44) | 135.10 | 146.97 | (140.47) | 136.53 | 196.32 |

*N. B.*—Figures in brackets indicate weighted averages for contact and chamber acids.
*Exclusive of return on block.

## TABLE II

*Statement showing the Board's estimate of cost of production per ton of superphosphate for the five units costed for the period 14th March to 31st December 1950.*

(Excluding transport charges on raw materials from the port to the factory and on superphosphate from the factory to the nearest railway station.)

| Name of firm | Fertiliers & Chemicals (Travancore) Ltd. | Parry and Co. Ltd. | Dharamsi Morarji Chemical Co. Ltd. | D. C. M. Chemical Works | Hyderabad Chemicals and Fertilisers Ltd. |
|---|---|---|---|---|---|
| | Rs. | Rs. | Rs. | Rs. | Rs. |
| **Raw Materials :** | | | | | |
| (a) Rock phosphate | 45.90 | 45.90 | 45.90 | 45.90 | 45.90 |
| (b) Wastage on above at 4% | 1.84 | 1.84 | 1.84 | 1.84 | 1.84 |
| (c) Total | 47.74 | 47.74 | 47.74 | 47.74 | 47.74 |
| (d) Sulphuric acid | 48.52 | 49.01 | 55.78 | 56.19 | 78.53 |
| (e) **Total raw materials** | 96.26 | 96.75 | 103.52 | 103.93 | 126.27 |
| 2. Conversion charges | 39.88 | 23.13 | 37.94 | 33.74 | *27.83 |
| 3. Total of 1 and 2 | 136.14 | 119.88 | 141.46 | 137.67 | 154.10 |
| 4. Depreciation | 13.60 | 1.17 | 2.34 | 4.07 | 4.73 |
| 5. Packing charges | 28.80 | 28.80 | 28.80 | 28.80 | 28.80 |
| 6. Interest on working capital | 3.53 | 3.00 | 3.44 | 3.40 | 3.74 |
| 7. Return on block | 18.07 | .. | 5.38 | 5.53 | 7.21 |
| 8. Total of 3—7 | 200.14 | †152.85 | 181.42 | 179.47 | 198.58 |

***Includes grinding charges.**

**†Exclusive of return on block.**

The principal questions which arise in connection with the above analysis of costs and the Board's conclusions thereon are briefly set out below:—

(i) *The quantity of sulphur required per ton of sulphuric acid*: The actual consumption of sulphur per ton of sulphuric acid in the five costed units during the 6 months ended 30th June 1950 varied from 0·34 to 0·38 ton. Having regard to the various factors responsible for this variation and after discussion with the manufacturers, we consider that the appropriate ratio of sulphur to sulphuric acid, whether under the contact or the chamber process, should be taken as 0·35 ton of sulphur for one ton of 100 per cent. sulphuric acid.

(ii) *Wastage on sulphur*: This has been allowed at the rate of 1 per cent. as on the last occasion.

(iii) *Price of sulphur*: After discussion with the manufacturers and after consulting importers a c.i.f. price of $34 or Rs. 163·2 per ton has been adopted.

(iv) *The quantity of nitre required per ton of sulphuric acid*:— Nitrate of soda is required for the manufacture of sulphuric acid by the chamber process. At the last inquiry, a ratio of 0·028 ton of nitrate of soda per ton of sulphuric acid was allowed in the case of the D. C. M. Chemical Works only, whereas a ratio of 0·014 was allowed in the case of all other units. We do not think that the concession granted to the D. C. M. Chemical Works should be continued in future After examining the available data (including the data relating to those manufacturers who use nitric acid instead of nitrate of soda) in consultation with the technical representatives of the industry, we have adopted a ratio of 0·0166 ton of nitre per ton of sulphuric acid. The price of nitre has been taken at the controlled rate of Rs. 378 per ton.

(v) *The variety of rock phosphate used for the manufacture of superphosphate*: At the time of the last cost investigation, most of the factories were using principally Moroccan rock phosphate. During the current year, however, the manufacturers have been using certain new varieties of rock phosphate in addition to the Moroccan and other varieties used previously. In their Joint Memorandum, the manufacturers have taken the cost of Kossier in estimating the cost of superphosphate in 1950. At the public inquiry, it was agreed that the cost estimates for the period from March to December 1950 should be based on Kossier only. This new variety was imported in unground condition and being inferior to the Moroccan phosphate required a higher consumption of sulphuric acid. It was, however, cheaper in price and even after allowing for grinding charges and the higher consumption of sulphuric acid, was found more economical than Moroccan phosphate on which the last estimates were based.

(vi) *The quantity of rock phosphate required per ton of superphosphate*: The quantity of rock phosphate has been taken at the rate of 0·6 ton of Kossier rock of 65 per cent. grade per ton of superphosphate.

(vii) *Wastage on rock phosphate*: The manufacturers submitted that an allowance of 5 per cent. loss on rock should be made at the rate of 2½ per cent. on account of handling and 2½ per cent. on account of grinding. An allowance of 2 per cent. on account of handling losses only was made during the previous inquiry, because most of the manufacturers were then using ground rock and as regards the few who were grinding their rock, sufficient data were then not available to the Board regarding the grinding losses incurred by them. We consider the allowance of 5 per cent. claimed by the manufacturers on account of handling and grinding losses taken together to be excessive, but we agree in principle that a reasonable allowance for loss during grinding should be made in estimating the wastage on rock phosphate. We have accordingly made an allowance of 4 per cent. on rock phosphate for handling and grinding losses taken together.

(viii) *Price of rock phosphate*: An average c.i.f. price of 90 shillings or Rs. 60 per ton for Kossier, as given in the Joint Memorandum and verified by us from the shipping documents produced by the importing firm, has been adopted.

(ix) *The quantity of sulphuric acid required per ton of superphosphate*: As stated earlier, the use of Kossier phosphate in lieu of Moroccan phosphate entails a higher consumption of sulphuric acid. After discussion with the technical representatives of the industry, we have assumed a ratio of 0·4 ton of 100 per cent. acid per ton of superphosphate.

(x) *Interest on working capital*: Interest has been allowed at the rate of 4 per cent. per annum on 6 months' cost of production.

(xi) *Depreciation*: In estimating the costs in the above Tables the Board has taken the actual amounts set aside by each firm by way of depreciation. Calculated in this way, the incidence of depreciation charges per ton of sulphuric acid as well as superphosphate shows a wide variation from one firm to another. In the case of sulphuric acid, the depreciation charges work out to a relatively low figure in the case of the East India Distilleries, Ltd. (which supply acid to Parry's) and a very high figure in the case of the Hyderabad Chemicals and Fertilisers, Ltd. The East India Distilleries is a very old unit, while the Hyderabad Chemicals and Fertilisers is a relatively new one. As regards superphosphate, the depreciation charges are low in the case of Parry's and the Dharamsi Morarji Chemical Co. and high in the case of the Fertilisers and Chemicals (Travancore). The differences are mainly accounted for by the varying ages of the plants, and by the varying proportions of actual output to capacity.

(xii) *Return on block*: In the case of Parry's and the East India Distilleries, which are very old firms, figures of the original value of the block for either sulphuric acid or superphosphate were not available. Moreover, the production of sulphuric acid and superphosphate is carried on along with that of other industrial chemicals and hence, in the case of most of the other units, the original value of the block utilised for the production of sulphuric acid and superphosphate has had to be estimated. Return has been allowed at 10 per cent. on the actual or estimated original value of the block. Like the depreciation charges and for the same reasons, the return per unit varies widely from one firm to another in the case of both sulphuric acid and superphosphate.

(xiii) *Managing agents' commission*: Any "commission" to be paid to the Managing Agents is normally a charge on the return on block and should be deemed to be included in it. We have, however, taken into account the contribution made by the Managing Agents to the actual productive effort and have included an allowance for this factor in the conversion charges.

(e) In estimating the cost of production for 1951, the following important factors have to be taken into account:

(i) *Price of sulphur*: The position in regard to the supply and prices of sulphur during 1951 has been discussed in paragraph 5(b) above. In consultation with the manufacturers, the Board has assumed that the industry will be using American sulphur out of its present stocks in the first 2 months of 1951 and Italian sulphur during the subsequent four months and that American sulphur will be available for use from July 1951 onwards. The average price per long ton, c.i.f. Bombay, of American sulphur of 99·5 per cent. grade is Rs. 163·2 and that of Italian sulphur expressed in terms of the same grade is Rs. 415·8. The average c.i.f. cost per long ton of sulphur to the industry over the twelve months of 1951, therefore, comes to Rs. 247·4. In the event of any appreciable change in the cost of sulphur, prices of superphosphate for the second half of 1951 should be subject to the adjustment recommended in sub-paragraph (j) below.

(ii) *The varieties of rock phosphate to be used, their prices and the consequential changes in the quantities of rock phosphate and sulphuric acid required per ton of superphosphate*: Owing to the increase in world demand, Kossier phosphate of 63/65 per cent. (tricalcic phosphate) grade is now being offered at the same f.o.b. price as that at which 65/66 per cent. grade was hitherto available. Further, the freight rates from Egypt have gone up from 35 shillings per ton six months ago to 45 shillings and are expected to rise further to 50 shillings. Consequently, the c.i.f. cost of Kossier phosphate is expected to go up from 90 shillings per ton in 1950 to about 102 shillings in 1951. In view of this increase in the price of Kossier phosphate, we find that it would now be more economical for the industry to use this phosphate in combination with another variety of phosphate called Makatea. We are advised that sufficient supplies of this latter variety are available. Makatea phosphate is 82 per cent. grade and its current c.i.f. price is Rs. 110 per ton. Taking into account the relative prices of Kossier and Makatea phosphates, their phosphatic contents and the quantities of sulphuric acid required in each case, we find that the most economical combination of the two would be in the ratio of 3 Kossier to 1 Makatea. The average c.i.f. cost of such a combination will be Rs. 78·5 per ton. We consider that the cost of production of superphosphate during 1951 should be based on this combination. If Kossier and Makatea are used in the ratio indicated, the consumption of rock phosphate per ton of superphosphate would work out to 0·58 ton and that of sulphuric acid to 0·38 ton. As in the case of sulphur, a review of superphosphate prices for the second half of 1951 to take account of any appreciable change in the cost of rock phosphate that may take place has been recommended in sub-paragraph (j) below.

(iii) *Packing*: The cost of packing is also likely to go up during 1951 owing to the substantial rise in the price of gunny bags which has taken place, and an appropriate increase in the packing cost has, therefore, to be allowed.

(f) Taking into account the data made available by the manufacturers, the Board has estimated the fair ex-works prices of sulphuric acid and superphosphate (excluding transport charges on raw materials from the port to the factory and on superphosphate from the factory to the nearest railway station) for a notional representative unit for the period from 14th March to 31st December 1950 and for the period from January to December 1951 as follows:—

## TABLE III

***Statement showing the Board's estimate of fair price per ton of Sulphuric acid (100%) for a representative unit for the period 14th March to 31st December, 1950 and for the calendar year 1951.***

| | | 14th March to 31st Dec. 1950 | 1951 |
|---|---|---|---|
| | | Rs. | Rs. |
| 1 | Sulphur* . . . . . . . | 62·72 | 93·10 |
| 2 | Wastage on above at 1% . . . . | 0·63 | 0·93 |
| 3 | Total . . . . . . . . | 63·35 | 94·03 |
| 4 | Nitre** . . . . . . . . | 3·76 | 3·76 |
| 5 | Total Materials . . . . . . | 67·11 | 97·79 |
| 6 | Conversion charges . . . . . . | 44·76 | 42·18 |
| 7 | Total of 1—6 . . . . . . . | 111·87 | 139·97 |
| 8 | Depreciation . . . . . . . | 11·64 | 10·87 |
| 9 | Interest on working capital . . . . | 2·44 | 2·98 |
| 10 | Return on block . . . . . . | 16·84 | 16·39 |
| 11 | Total of 7—10 . . . . . . | 142·79 | 170·21 |

| | | 14th March to 31st Dec. 1950 | 1951 |
|---|---|---|---|
| | **Sulphur—* | Rs. | Rs. |
| (*a*) | C. i. f. Price | 163·2 | 247·4 |
| (*b*) | Clearing charges (Madras) | 7·0 | 7·0 |
| (*c*) | Gunnies | 7·0 | 9·6 |
| (*d*) | Other handling charges | 2·0 | 2·0 |
| (*e*) | Total cost | 179·2 | 266·0 |
| (*f*) | Quantity required per ton of acid | 0·35 Ton. | 0·35 Ton. |
| (*g*) | Cost of Sulphur required per ton of acid (*e*) × (*f*) | Rs. 62·72 | Rs. 93·10 |

| | | |
|---|---|---|
| | ***Nitre—* | |
| (*a*) | Quantity required per ton of Chamber acid. | 0·0166 ton. |
| (*b*) | Rate per ton of Nitre | Rs. 378·00 |
| (*c*) | Cost of Nitre per ton of chamber acid (*a*) × (*b*) | Rs. 6·27 |
| (*d*) | Proportion of chamber acid to total acid produced | 3 : 5 |
| (*e*) | Average addition to the cost of sulphuric acid on account of the use of nitre [3/5 of (*c*)] | Rs. 3·76 |

## TABLE IV

*Statement showing Board's estimate of fair price per ton of Superphosphate for a representative unit for the period 14th March to 31st December 1950 and for the calendar year 1951.*

| | | 14th March to 31st Dec. 1950 | 1951 |
|---|---|---|---|
| | | Rs. | Rs. |
| 1 | Rock phosphate (including wastage)* | 47·74 | 58·87 |
| 2 | Sulphuric Acid** | 57·12 | 64·68 |
| 3 | Total materials | 104·86 | 123·55 |
| 4 | Conversion charges | 33·99 | 27·59 |
| 5 | Total of 1—4 | 138·85 | 151·14 |
| 6 | Depreciation | 4·07 | 3·13 |
| 7 | Packing charges | 28·80 | 34·50 |
| 8 | Interest on working capital | 3·42 | 3·76 |
| 9 | Return on block | 8·00 | 7·50 |
| 10 | Total of 5—9 | 183·14 | 200·03 |

| | | 14th March to 31st Dec. 1950 | 1951 |
|---|---|---|---|
| | **Rock phosphate*— | Rs. | Rs. |
| (*a*) | C. i. f. price of Rock phosphate (Kossier in 1950 and a combination of Makatea and Kossier in 1951) | 60·00 | 78·50 |
| (*b*) | Clearing charges (Madras) | 9·50 | 9·50 |
| (*c*) | Gunnies | 7·00 | 9·60 |
| (*d*) | Total | 76·50 | 97·60 |
| (*e*) | Quantity per ton of superphosphate | ton 0·60 | ton 0·58 |
| (*f*) | Cost of Rock phosphate per ton of superphosphate (*d*)×(*e*) | Rs. 45·90 | Rs. 56·61 |
| (*g*) | Wastage at 4% on above | „ 1·84 | „ 2·26 |
| (*h*) | Total cost of rock phosphate | „ 47·74 | „ 58·87 |
| | ***Sulphuric Acid*— | | |
| (*a*) | Quantity required per ton of superphosphate | ton 0·40 | ton 0·38 |
| (*b*) | Price per ton of acid (*vide* Table III) | Rs. 142·79 | Rs. 170·21 |
| (*c*) | Total price of acid | „ 57·12 | „ 64·68 |

The cost of production of sulphuric acid shown in Table III above is based on the weighted averages of the figures relating to contact and chamber acid. It has been estimated that approximately three-fifths of the sulphuric acid utilised for the production of superphosphate is chamber acid.

(g) To arrive at the fair prices of superphosphate, f.o.r. the nearest railway station, for individual factories from the fair price for a representative unit given in the preceding paragraph, the following allowances have to be made:

(i) Transport charges and incidental expenses on raw materials from the port to the factory and on superphosphate from the factory to the nearest railway station. At the last inquiry, a uniform price was fixed for all port factories (and prices for inland factories) were worked out by adding freight on sulphur and rock phosphate. The manufacturers suggested that the so-called port factories were situated at varying distances from the ports concerned and that all factories should, therefore, be allowed the actual freight charges incurred by them on their raw materials. They suggested, further, that freight charges should be allowed on nitre (where sulphuric acid was produced by the chamber process) as well as on sulphur and rock phosphate and that incidental expenses, including terminal and octroi taxes, on all the three raw materials should also be allowed. We have examined these suggestions and consider that the suggested additions are justified and should be allowed. We also consider that the actual transport charges and incidental expenses incurred by the factories on their superphosphate from the works to the nearest railway station should be allowed instead of making a uniform allowance for this factor as was done at the last inquiry. (See Appendix VII).

(ii) An appropriate allowance for the higher clearing charges paid by the factories drawing their supplies of raw materials through the Bombay Port as compared with those using the Madras Port.

(iii) Three factories, namely, the National Fertilisers, Ltd., Poona, the Phosphate Co. Ltd., Calcutta, and the Premier Chemicals, Mysore, do not have their own acid plants and have consequently to purchase their acid requirements from the open market. In paragraph 9 of its previous Report, the Board emphasised that the availability of cheap sulphuric acid at the site of the superphosphate factory is one of the prime factors in the economical production of superphosphate. Those factories which do not have their sulphuric acid plant must, therefore, take steps to install such plants as early as possible. As stated earlier, the National Fertilisers Ltd. have made arrangements with the West India Chemicals for the production of sulphuric acid at the site of their superphosphate factory and the latter firm is expected to start production by the end of December 1950. The Phosphate Co. Ltd. have already placed an order for their plant and expect to commence the manufacture of sulphuric acid by the middle of 1951. The Premier Chemicals, Mysore, have informed us that they are placing an order for their sulphuric acid plant and that they hope to start production of acid before the end of 1951. In order that the production of superphosphate in the country may be maintained through a fuller utilisation of the existing productive capacity, we consider that the National Fertilisers, the Phosphate Co. and the Premier Chemicals should be given an allowance of Rs. 31·6, Rs. 23·2 and Rs. 24·4 per ton of superphosphate respectively during the period 14th March to 31st December 1950 to cover the additional cost incurred by them as a result of having to purchase their sulphuric acid from the open market. In view of the expected rise in the price of sulphuric acid, the allowance to be given to the Phosphate Company on this account should be increased to Rs. 33·6 per ton during January to June 1951 and that to be given to the Premier Chemicals to Rs. 34·8 per ton during January to December 1951. The National Fertilisers should receive no special allowance on account of the cost of sulphuric acid after 31st December 1950, the Phosphate Co. after 30th June 1951 and the Premier Chemicals after 31st December 1951. (See Appendix VIII).

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(h) At the public inquiry, the manufacturers represented that in order to maintain the output of superphosphate at a high level, the smaller units should be allowed a suitably higher price to enable them to continue production. It was stated that some of these units were situated in regions where no large units existed. We have already explained that in calculating the fair price for a representative unit, we have taken into account the cost data relating to the industry as a whole and not merely those relating to the large or the small units. Moreover, any increase in price granted to a firm, merely on the ground of the smallness of its size and its consequent higher cost of production, may tend to become a recurring commitment and remove all incentive on the part of the firm to enlarge its productive capacity and reduce its costs of production. While an increase in production is a desirable objective, such increase should not be obtained at the cost of so inflating the Pool price as to discourage consumption. We, therefore, consider that the prices for the smaller units also should be based on the fair ex-works price estimated by us for a representative unit.

(i) *Fair prices of superphosphate payable to the thirteen factories in the Pool.*—On the basis of the above, we recommend the following to be the fair prices for superphosphate purchased from the thirteen factories in the Pool for the period from 14th March to 31st December 1950 and for the year 1951.

## TABLE V'

*Statement showing the board's estimate of fair prices (F.O.R. the nearest Railway Station) per ton of superphosphate for each Member of the Pool for (i) 14th March to 31st December, 1950 and (ii) for the Calendar year 1951.*

| Name of firm | Fair prices now recommended by the Board for March-December, 1950 | Prices previously recommended by the Board for February 1949 to June '50 *minus* the voluntary reduction of Rs. 14/- per ton except in the case of firms marked* | Difference between II and III | | Fair prices recommended by the Board for 1951 |
|---|---|---|---|---|---|
| | | | Decrease | Increase | |
| I | II | III | IV | | V |
| | Rs. | Rs. | Rs. | Rs. | Rs. |
| 1. Fertilisers and Chemicals (Travancore) Ltd., Alwaye | 193 | 196 | 3 | .. | 210 |
| 2. Parry and Co., Ltd., Madras | 193 | 196 | 3 | .. | 210 |
| 3. Dharamsi Morarji Chemical Co. Ltd. Bombay | 193 | 196 | 3 | .. | 210 |
| 4. Sonawala Industries, Bombay | 193 | 196 | 3 | .. | 210 |
| 5. Western Chemical Industries, Bombay | 193 | 196 | 3 | .. | 210 |
| 6. Eastern Chemical Co. (India), Bombay* | 193 | 210 | 17 | .. | 210 |
| 7. D. C. M. Chemical Works, Delhi | 226 | 226 | .. | .. | 241 |
| 8. National Fertilisers Ltd., Poona | 232 | 241 | 9 | .. | 218 |
| 9. Hyderabad Chemicals and Fertilisers Ltd., Belampalli, Hyderabad (Dn.)* | 213 | 230 | 17 | .. | 226 |
| 10. Anil Starch Products Ltd., Ahmedabad | 208 | 211 | 3 | .. | 224 |
| 11. Mysore Chemicals and Fertilisers Ltd., Mysore* | 208 | 225 | 17 | .. | 218 |
| 12. Phosphate Co. Ltd., Calcutta | 216 | 196 | .. | 20 | 244 upto 30th June 1951 from 1st July<br>210 to 21st December, 1951. |
| 13. Premier Chemical Industries, Mysore | 228 | 225 | .. | 3 | 255 |

*N. B.*—(*i*) Nos. 8, 12 and 13—purchase acid outside.

(*ii*) Prices now recommended by the Board include packing charges per ton of superphosphate as under :—

(*a*) Rs. 28·8 for March to December 1950, (*b*) Rs. 34·5 for 1951.

It will be seen that in the case of the following five factories, namely, the Fertilisers and Chemicals (Travancore), Parry and Co., the Dharamsi Morarji Chemical Co., the Sonawala Industries and the Western Chemical Industries, the revised price now recommended for the period 14th March to 31st December 1950 comes to Rs. 3 less than the provisional price voluntarily agreed to by them in March 1950 for the period from 14th March to 30th June 1950. The same is the case with the Anil Starch Products. In the case of the D. C. M. Chemical Works, the revised price of Rs. 226 now recommended for the period 14th March to 31st December 1950 is the same as the price paid to the firm since 14th March 1950 and thus no refund will be due from the firm. This is due to the fact that the factory of this firm is located at Najafgarh at a considerable distance from the railway station through which it draws its raw materials and despatches its finished product, and its transport and incidental expenses from the station to the factory are consequently high in comparison with those incurred by the other firms mentioned above. At the last inquiry, a uniform allowance was made for such expenses in the prices fixed for all factories, whereas in the present investigation, such expenses have been allowed in each case at rates determined by the Board to be appropriate in the light of local conditions.

Of the three firms which buy their acid in the open market, the National Fertilisers now buy their acid at a lower rate than that paid by them last year and consequently, the price now recommended for them for the period from 14th March to 31st December 1950 comes to Rs 232 or Rs. 9 less than the provisional price of Rs. 241 paid to them since 14th March 1950. The Phosphate Co. Ltd. is subject to a double handicap inasmuch as, in addition to having to buy its acid from other producers, its incidental expenses are also high, since it has to obtain its raw materials by boat and lorries over a distance of 20 miles from the port. The special allowance recommended for it on account of the high cost of acid is Rs. 23·2 for the period from 14th March to 31st December 1950 and Rs. 33·6 for the period from January to June 1951 after which it will produce its own acid. The price recommended for this firm for 14th March to 31st December 1950 is, therefore, higher by Rs. 20 than the provisional price of Rs. 196 granted to the firm at the time of its admission to the Pool. The Premier Chemical Industries are being provisionally paid the same price as the Mysore Chemicals and Fertilisers, namely, Rs. 225. The former firm has, however to purchase its acid requirements and its cost is consequently higher and a price of Rs. 228 has, therefore, been recommended for this firm for the period from 14th March to 31st December 1950.

The following three firms, namely, the Eastern Chemical Co., the Hyderabad Chemicals and Fertilisers and the Mysore Chemicals and Fertilisers did not agree to the reduction of Rs. 14 offered by other manufacturers in March 1950. If the fair prices for these three firms for 14th March to 31st December 1950 were worked out on the same basis as that adopted by us for other firms, they would come to Rs. 193, Rs. 211 and Rs. 203 respectively. These prices would be less than those at present paid to them by Rs. 17, Rs. 19 and Rs. 22 respectively. However, in order to avoid any possible hardship to the Hyderabad Chemicals and Fertilisers and the Mysore Chemicals and Fertilisers, we recommend that the prices for these two firms for 14th March to 31st December 1950 should be fixed at Rs. 213 and Rs. 208 respectively, *i.e.* Rs. 17 less than those at present paid to them as in the case of the Eastern Chemical Co. Of this reduction of Rs. 17, Rs. 14 corresponds to the voluntary cut offered by other factories in March 1950 and Rs. 3 to the further cut now recommended by us for six other factories.

We recommend that the excess payments due to be recovered from the factories on the basis of the fair prices now recommended by us should, as far as practicable, be adjusted against the payments to be made to them for future supplies.

(j) Considerable uncertainty exists with regard to the future price of sulphur and the freight rates on, and the price of, rock phosphate. We, therefore, recommend that the position in this respect should be reviewed by Government by the end of June 1951 and in the event of a significant change in the cost of sulphur or rock phosphate, the prices specified in the preceding sub-paragraph should be adjusted for the half-year July-December 1951 in accordance with the following formulae:—

(I) ***Sulphur***—

| | |
|---|---|
| **(*i*) The c.i.f. cost of sulphur on which fair prices of superphosphate for 1951 recommended by the Board are based .** | **Rs. 247·4 per ton** |
| **(*ii*) Average c.i.f. cost of sulphur during 1951** | **X** |
| **(*iii*) Variation between (*i*) and (*ii*) .** | **X—247·4** |
| (*iv*) Incidence of (*iii*) on the cost of sulphuric acid per ton allowing for wastage on sulphur . . . . . . | (X—247·4)×0·353 |
| (*v*) Incidence of (*iv*) on the cost of superphosphate per ton . . . . . | (X—247·4)×0·353×0·38=(X—247·4)×0·134. |

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(II) *Rock phosphate*—

| | |
|---|---|
| (*i*) The c.i.f. cost of rock phosphate (taking Kossier and Makatea in the ratio of 3:1) on which fair prices of superphosphate for 1951 recommended by the Board are based . . . . . | Rs. 78·5 per ton |
| (*ii*) Average c.i.f. cost of rock phosphate during 1951. (On the basis of the same ratio between Kossier and Makatea) . | Y |
| (*iii*) Variation between (*i*) and (*ii*) . . | (Y—78·5) |
| (*iv*) Incidence of (*iii*) on the cost of superphosphate per ton allowing for wastage on rock phosphate . . . . . | (Y—78·5)×0·603 |

The above formulae are based on the assumption that Kossier and Makatea rock phosphates will be used in the ratio of 3 : 1. If, however for any reason, Makatea phosphate is not available and the industry is forced to use Kossier alone during the major part of 1951, the ratios of acid and rock phosphate consumed per ton of superphosphate will change to 0·41 and 0·653 respectively. In that event, the change in the cost of production of superphosphate will be roughly equal to 0·353 $[(X \times 0{\cdot}41 - (247{\cdot}4 \times 0{\cdot}38)] + [(Y \times 0{\cdot}653) - (78{\cdot}5 \times 0{\cdot}603)]$, X and Y meaning the average c.i.f. cost of sulphur and the average c.i.f. cost of rock phosphate respectively during 1951.

(k) The Star Chemical Works, Baroda and the Alembic Chemical Works, Baroda, have applied to the Government of India for admission to the Pool. While it is true that the potential demand for superphosphate is considerably higher than the existing productive capacity of the industry, it will take some time for the potential demand to materialise. The estimated offtake during 1951 is well within the productive capacity of the existing units. Some of the existing units have made appreciable additions to their productive capacity, and since it is desirable in a heavy chemical industry like superphosphate to encourage the establishment of large units in order to bring down the cost of production, sufficient scope should be left for the existing units to utilise their enlarged productive capacity. We, therefore, recommend that the question of admitting new units to the Pool should be deferred, until there is a clear prospect of a substantial increase in the demand for superphosphate above the present level.

The Star Chemical Works are producing sulphuric acid but have declared their willingness to put up a plant for the manufacture of superphosphate if they are included in the Pool. The acid and superphosphate plants of the Alembic Chemical Works are in the process of erection. Both the firms have submitted estimates of their probable costs of production. After examining these estimates and subject to what has been said above with regard to the desirability of admitting them to the Pool, we consider that the fair price of superphosphate during 1951 for both the firms would be Rs. 222 per ton.

(l) After the public inquiry was concluded, two firms, namely, the Dharamsi Morarji Chemical Co. Ltd. and Parry and Co., Ltd. informally represented to the Board that under paragraph 1 (v) read with paragraph 2 of the Government Resolution No. 10-T(2)/49 dated the 22nd June 1949, the prices fixed by that Resolution were to remain in force till 30th June 1950, and that consequently the prices applicable to the period 14th March to 30th June 1950 could be adjusted in accordance with paragraph 1 (v) of that Resolution, only to the extent required to allow for changes in the cost of sulphur and rock phosphate and not those in the other elements in the cost of production. This point was not raised at the public inquiry at which the manufacturers agreed to a uniform price being fixed for the period from 14th March to 31st December 1950. We have, however, examined the point and have come to the conclusion that if the prices for the period 14th March to 30th June 1950 were revised to allow for changes in the cost of sulphur and rock phosphate only, without making any change whatever in the former basis of cost calculation, they would be approximately the same as those recommended by us for the entire period from 14th March to 31st December 1950, as may be seen from the figures given below:—

The basic price of superphosphate adopted on the last occasion was based on an average of the ex-works costs of three port factories, namely, Fertilisers and Chemicals, Parry and Co. and Dharamsi Morarji Chemical Co. The variations in the costs of sulphur and rock phosphate between

1949 and 1950 have, therefore, been worked out in the following calculation by taking the data relating to these three firms.

| | 1949 | March to June 1950 | Increase | Decrease |
|---|---|---|---|---|
| | Rs. | Rs. | Rs. | Rs. |
| A—*Sulphur*— | | | | |
| (*i*) Average price per ton, f.o.r. port town, adopted for the three port firms . . . | 177·33 | 181·53 | | |
| (*ii*) Wastage on above . | 2·00 | 1·82 | | |
| (*iii*) Total cost per ton . | 179·33 | 183·35 | | |
| (*iv*) Quantity required per ton of superphosphate | 0·13<br>(0·35×0·36) | 0·14<br>(0·35×0·4) | | |
| (*v*) Cost of sulphur per ton of superphosphate (*iii*)×(*iv*) . . . | 23·31 | 25·67 | | |
| (*vi*) Increase in cost of superphosphate due to increase in price of sulphur . . . | | | 2·36 | |
| B—*Rock phosphate*— | | | | |
| (*i*) Average price per ton, f.o.r. port town, adopted for unground rock phosphate for the three port firms . . | 110 | 76·5 | | |
| (*ii*) Wastage on above . | 2 | 1·53 | | |
| (*iii*) Total cost per ton . | 112 | 78·03 | | |
| (*iv*) Quantity required per ton of superphosphate | 0·6 | 0·6 | | |
| (*v*) Cost of rock phosphate per ton of superphosphate (*iii*) ×(*iv*) | 67·2 | 46·82 | | |
| (*vi*) Decrease in cost of superphosphate due to decrease in price of rock phosphate . | | | | 20·38 |
| C—Overall reduction on account of variation in prices of rock phosphate and sulphur. | (B—A) | | | 18·02 |
| D—Reduction offered by the firms in March 1950. | | | | 14·00 |

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No allowance has been made in the above calculation [redacted] grinding incurred by the firms as the result of using Kossier rock phosphate instead of Moroccan rock phosphate. If an allowance at the rate of 2 per cent. of the value of rock phosphate is made on this account, the reduction to be offered by factories for the period, 14th March to 30th June 1950, comes to Rs. 17 (*i.e.* the difference between 18·02 and 1·53 x ·6=0·92). Thus, even on this basis, the prices for the period in question work out to be nearly the same as those recommended by us, after taking all the elements in the cost of production into account, for the period 14th March to 31st December 1950. Even if the position had been otherwise, and Government were to fix higher prices for the period from 14th March to 30th June 1950, it would have been open to them so to adjust the prices for the subsequent period up to 31st December 1950 as to ensure that, on an average for the whole period, the industry received no more than the prices recommended by the Board. For these reasons, the Board is satisfied that it is fair to the industry to treat the period from 14th March to 31st December 1950 as one period for the purpose of price fixation.

**Working of the Phosphate Pool.**

8. (a) The Phosphate Pool started functioning in February 1949. Since then, the superphosphate factories which have joined the Pool are required to sell their entire output to the Pool and to distribute it to the State Governments and other consuming interests in accordance with the allocations made by the Pool. Although the recommendations of the Tariff Board in regard to the fair prices to be received by factories for superphosphate purchased from them were made in April 1949, these prices were made applicable with retrospective effect from February 1949, and a pool price of Rs. 227 per ton worked out on a 'no profit, no loss' basis was fixed. With effect from 14th March 1950, however, as a result of the reduction in the price of rock phosphate and certain other factors, all the factories in the Pool, except the Eastern Chemicals Co. (India) Ltd., the Hyderabad Chemicals and Fertilisers Ltd. and the Mysore Chemicals and Fertilisers Ltd., agreed to a reduction of Rs. 14 per ton in the prices paid to them, and consequently the pool price was revised to Rs. 207 per ton with effect from 1st April 1950. In calculating the revised pool price, the production of the three firms which had not made a voluntary cut in their prices was taken into account for a period of three months only, *i.e.* up to 30th June 1950. Similarly, in view of the possibility of a further reduction in the ex-works price payable to the National Fertilisers, Ltd., as a result of their sulphuric acid plant coming into production, their production for three months only was taken into account in calculating the pool price. The Phosphate Company Ltd. and the Premier Chemicals were admitted to the Pool on the condition that they accepted the reduction of Rs. 14 per ton on a provisional basis subject to final adjustments on the recommendation of the Board. The Pool now includes 13 factories.

(b) Appendix VI shows (i) the allocations made by the Pool during February—June 1949, July—June 1949-50 and January—December 1950, and (ii) the despatches made by the various factories during February—June 1949, July—December 1949, and January—July 1950. The total quantity of superphosphate allocated during the first period, February—June 1949 was 31,759 tons, but the actual despatches came to 6,538 tons only. An allocation of 100,645 tons of superphosphate was made in September 1949 for the fertiliser year, July—June, 1949-50. Owing to an unexpected decline in the imports of sulphate of ammonia and for other reasons, the offtake of superphosphate during the latter half of 1949 was very poor and most of the State Governments did not accept the allocations made in September 1949. These allocations were, therefore, cancelled, with effect from 1st January 1950, in March 1950 when fresh allocations to the extent of 89,800 tons were made. Despatches during the period from July to December 1949 came to 19,460 tons and those during January to June 1950 to 14,742 tons as against 1 lakh tons allocated for the two periods taken together. Out of the allocations of 89,800 tons made in March 1950 for 1950, the State Governments had originally accepted 50,200 tons. Since the middle of 1950, however, the offtake of superphosphate has improved, partly because of larger receipts of sulphate of ammonia and partly because of other factors and the Madras Government have placed a further indent for 10,000 tons, the Malwa Development Board for 5,000 tons and the tea industry for 8,000 tons, bringing the total acceptances for 1950 to 73,200 tons. In August 1950, the Ministry of Agriculture sent a circular letter to the State Governments requesting them to indicate their firm demands for superphosphate and sulphate of ammonia for 1951. The total demands for superphosphate indicated by the State Governments, the tea and coffee plantations and the United Planters' Association of South India amount to about 75,000 tons. The Ministry of Agriculture expects that some of the State Governments are likely to need supplementary allocations and that the total offtake during 1951 may, therefore, come to about 90,000 tons. If these expectations materialise, the industry would be able to achieve a substantial increase in output during 1951.

(c) The failure of the State Governments until June 1950 to utilise the quotas allotted to them resulted in a heavy accumulation of stocks with the factories, the main factors responsible for this situation, the other difficulties experienced by the industry and the action needed are discussed in the following section.

**Subsidiary measures of assistance to the industry.**

9. (1) *Supply of raw materials.*—(a) *Rock phosphate.*—Approximately 60,000 tons of rock phosphate are required for the production of 100,000 tons of 16 per cent. superphosphate, and on the basis of maintaining a carry-over of 30,000 tons of rock phosphate from year to year, the total requirements of the industry for 1950 were estimated at 90,000 tons. The Board understands that sufficient provision was made in the foreign exchange budget for 1950 for the import of this quantity, and although statistics of the actual imports of rock phosphate during 1950 are not available, the Board is satisfied from the replies received from the manufacturers that adequate supplies of rock phosphate have been available to the industry. Some of the manufacturers, however, have complained of delays in securing the necessary import licences, but in view of the improvements recently made in the administrative arrangements for import control, there is every reason to hope that such delays, if any, will be greatly minimised in future. As stated earlier, the superphosphate factories have been experimenting, during the current year, with rock phosphate drawn from sources other than Morocco, such as Egypt and the Makatea Islands, and since rock phosphate from these latter sources has been found to be more economical, future supplies are likely to be drawn from them in preference to Morocco.

(b) *Sulphur.*—Sulphur has been placed on an Open General Licence for imports from all sources (except the Union of South Africa) with effect from 5th August 1950. In paragraph 5(b) above, the Board has drawn attention to the difficulties experienced by the industry in securing its requirements of sulphur from the United States. On the basis of an output of 100,000 tons of superphosphate, this industry alone needs about 15,000 tons of sulphur annually, but since sulphuric acid is required for a variety of other uses, the total demand for sulphur is much higher, being estimated by the Target Committee for the production of sulphuric acid and superphosphate, Ministry of Industry and Supply, at 60,000 tons. The present stocks with the industry are likely to last till the end of February 1951 only. As stated earlier, American exporters have been unwilling to enter into any forward commitments for supplies during 1951 and the present indications are that the quantity available from that country may not exceed 25,000 tons. The balance of the requirements could be met from Italy, but the price of Italian sulphur is much higher than that of American sulphur. Since the use of Italian sulphur will mean a substantial increase in the cost of production of superphosphate, we recommend that the industry should be given all possible assistance in securing its requirements of sulphur from the United States. It will be observed that in determining the fair prices of superphosphate for 1951, we have assumed that adequate supplies of American sulphur will be available to the industry from July 1951 onwards. If the efforts now being made by Government and the industry are successful in securing an adequate supply of sulphur from abroad, no special measures will be required to conserve the available supplies of sulphur and to regulate its prices. We recommend, however, that a careful watch should be kept over the supply and prices of sulphur and sulphuric acid, since these materials are essential to the superphosphate and many other industries. We also recommend that since any appreciable increase in the price of superphosphate is bound to result in a fall in its consumption, the manufacturers should try their utmost to make up for the rise in the cost of sulphur by effecting economies in their manufacturing expenses.

(2) *Steps to increase the consumption of superphosphate.*—In its earlier Report, the Board had expressed the hope that in view of the programme of intensive cultivation undertaken by the Central and the State Governments, there would be no difficulty in ensuring the offtake of the entire production of superphosphate. Unfortunately, the actual offtake of superphosphate has not come up to expectations. During 1949 and the first half of 1950, many of the State Governments failed to lift the quotas allotted to them, and the factories were consequently left with heavy stocks. Several factors were responsible for this state of affairs, at least one of which was of a purely temporary character, namely, the post-devaluation difficulties in importing sulphate of ammonia of which 62,529 tons were imported during July to December 1949, although arrangements had been made for imports of about 4 lakh tons during July—June 1949-50. Since superphosphate is used only in combination with sulphate of ammonia and other fertilisers, the demand for superphosphate was naturally affected by the fall in imports of sulphate of ammonia. The supply position of sulphate of ammonia has now improved considerably, imports during the first 8 months of 1950 being 389,017 tons as compared with 121,297 tons during the whole of 1949. The other difficulties, however, which are standing in the way of an increased consumption of superphosphate would still appear to need attention. In their written representations to Government as well as to the Board, the manufacturers have mentioned the following factors as being principally responsible for the disappointing offtake of superphosphate: (i) that the State Governments have failed to carry out adequate propaganda to educate the cultivators in the use of

phosphatic fertilisers, (ii) that some of the State Governments have not been availing themselves of the grants offered by the Central Government under the Grow More Food Scheme to subsidise the sale of superphosphate, (iii) that in some of the States the price of superphosphate to the final consumer is unduly inflated by the heavy additions made by the State Governments on account of transport and other incidental charges, and (iv) that the allocations of sulphate of ammonia by the Central Government to the State Governments has not been made conditional on the latter taking a specific proportion of superphosphate as was suggested by the manufacturers at the time of the last inquiry. These various factors are discussed below *seriatim.*

(i) The need for intensive propaganda for the purpose of increasing the consumption of superphosphate was stressed in the Board's earlier Report and has been generally accepted by Government and the industry. As recommended by the Board, a Superphosphate Advisory Panel has been constituted to advise Government on matters relating to the production and consumption of superphosphate and has been functioning since February 1950. The Panel has recommended various measures for encouraging the use of superphosphate and the Board understands that these are being considered by the Central Government in consultation, wherever necessary, with the State Governments. Judging from results, however, the Board feels that the propaganda hitherto carried out, whether by the State Governments or by the industry, has not been adequate to meet the requirements of this case. The demand for superphosphate from the cultivators has been unsatisfactory and this was mainly responsible for the failure of the State Governments to lift the quotas allotted to them during 1949 and the early part of 1950, although the temporary short-fall in imports of sulphate of ammonia also played a part. During that period, the estimates made by the State Governments of the probable demand for superphosphate in their territories were not realised. While the demands formulated by the State Governments were only in the nature of estimates and could not be binding on them, the factories which had to plan their production on the basis of such demands were involved in financial difficulties when the demands failed to materialise. The principal raw materials required for the manufacture of superphosphate are imported and the factories have consequently to cover their requirements of raw materials for several months ahead. If the offtake of the finished product does not come up to expectations, funds are locked up and further production is impeded. Under the Pool system, the factories which are members of the Pool are required to sell exclusively to the Pool and are, therefore, precluded from having recourse to the open market for the disposal of their accumulated stocks. As stated earlier, the situation has considerably improved of late, but we should not, on that account, fail to draw a lesson from past experience. The Board considers that if the main objects of the Pool, namely, the preservation of soil fertility and the expansion of agricultural production are to be effectively realised, and if the responsibilities involved in the arrangement whereby the factories are required to sell exclusively to the Pool are to be fully implemented, it is necessary that the State Governments should pay greater attention than they have done hitherto to the need for undertaking an intensive campaign to educate the cultivator in the use of superphosphate. It is also necessary that the demands for superphosphate from the various States should be formulated with due regard to the extent to which such campaign is proposed to be carried out either by the State Governments or by others and the results expected therefrom. So far as the Central

Government are concerned, the Board is happy to note that the Ministry of Agriculture have taken various measures to propagate the use of superphosphate. Some of these measures have been referred to in subparagraph (iv) below. The manufacturers have on more than one occasion acknowledged the assistance they have received from the Ministry of Agriculture in increasing the demand for superphosphate.

Some of the bigger manufacturers also have been carrying on propaganda, out of their resources, for a wider use of superphosphate. On the recommendation of the Superphosphate Advisory Panel, the Government of India have recently allotted 3,000 tons of sulphate of ammonia to the superphosphate industry for preparing suitable mixtures and popularising them. The quantity has been divided equally among the manufacturers. For effective propaganda among cultivators, considerable field work has to be done, and this can be organised only on a decentralised basis. At one of the meetings of the Panel, the manufacturers suggested that they would constitute a Superphosphate Development Board to popularise the use of superphosphate, provided a suitable allowance was included in the ex-works price of superphosphate to finance the scheme. The manufacturers have drawn up a tentative scheme for the constitution of the Board and have claimed an allowance of Rs. 5 per ton of superphosphate to cover the contributions to be made by them towards the cost of the scheme. We consider that since it is in the long-term interest of the industry itself that the consumption of superphosphate should be encouraged, the manufacturers themselves should be prepared to bear a substantial part of the cost of this scheme as a long-term investment. Moreover, from the material placed before us regarding the constitution and functions of the proposed organisation, we do not think that the scheme has yet been evolved in sufficient detail to justify an extra burden being placed on the consumer immediately for the purpose of financing it. We, therefore, recommend that consideration of this matter be deferred until the manufacturers have been able to evolve a sufficiently detailed scheme giving a clear picture of the concrete measures they propose to adopt to stimulate the consumption of superphosphate.

(ii) The other contention of the manufacturers that some of the State Governments do not subsidise the distribution of superphosphate is borne out by the evidence received by the Board. Phosphatic fertilisers are included in the Central Government's food production scheme which provides that the Central Government will give grants to the State Governments to the extent of 50 per cent. of the net expenditure on any approved food production project in the case of the Part A and B States, except Assam and Orissa 66-2/3 per cent. of the net expenditure in the case of Assam and Orissa, 75 per cent. of the net expenditure in the case of Coorg and the whole of the net expenditure in the case of the other centrally administered States. According to the information received by the Board, superphosphate is sold in Madras at Rs. 130 per ton which is half the cost including transport and incidental charges, in Mysore, at the pool price of Rs. 207 per ton without adding the transport and incidental charges, in West Bengal at Rs. 150 per ton which is half the cost, in Orissa, at half of the cost for paddy crops and at three-quarters of the cost for other crops, in Bihar, at Rs. 129/1/0 per ton which is half the cost, in Coorg at Rs. 125 per ton which is also half the cost and in the United State of Travancore and Cochin, at Rs. 155 per ton which is two-thirds of the cost. In Saurashtra, superphosphate is sold in a mixture composed of eight parts of groundnut cake, one part of sulphate of ammonia, and one part of superphosphate and the mixture is sold at Rs. 136-2-0 per ton. The Board has not received complete data about the distribution of superphosphate in all parts of the country, but it is clear from the available evidence that at least some of the remaining States are not availing themselves of the subsidies offered by the Central Government for reducing the price of superphosphate to the cultivator. In Bombay, for example, superphosphate is sold at Rs. 262 per ton which includes transport and incidental charges, the latter amounting to as much as Rs. 38 per ton. The reluctance of some of the State Governments to bear their share of the subsidy is mainly due to financial stringency, and since the grant of the Central subsidy is conditional on the State Governments bearing a part of the burden, the Central subsidy cannot be applied directly to the pool price. While we do not wish to minimise the financial difficulties confronting some of the State Governments, we feel that an increase in food production is of such vital importance that no measure which is likely to be of substantial help in achieving it should be rejected on financial grounds alone. It is recognised on all hands that a wider use of superphosphate in combination with other fertilisers will make a material contribution to food production and that the high cost of superphosphate, coupled with the ignorance of the cultivator regarding its utility, is one of the chief impediments to its use. The price of superphosphate is still too high for the average cultivator and we have, therefore, no doubt that its distribution needs to be subsidised for some time. We accordingly recommend that those State Governments which are at present not subsidising the distribution of superphosphate should be requested to do so, to whatever extent possible, in order that superphosphate may be used in their territories on a larger scale.

(iii) The variations in the price of superphosphate from one State to another are due partly to transport charges which depend on the distance from which supplies are drawn and partly to the varying amounts added by the State Governments by way of incidental charges. The question of reducing the transport charges is discussed separately below. The Board understands that in the case of some States, the incidental charges amount to a substantial proportion of the final cost. In Bombay, for example, the amount allowed by way of incidental charges comes to Rs. 38 per ton made up as follows:—

| | Rs. |
|---|---|
| Handling charges | 10 |
| Distributor's commission | 5 |
| Sub-distributor's " | 7 |
| Handling chanrges at the destination | 5 |
| Re-bagging charges | 6 |
| Shrinkage and loss in transit | 5 |
| | 38 |

In Bombay, the distribution of superphosphate has been entrusted to the Bombay Provincial Co-opeartive Marketing Society Ltd., and the Agri-orient Industries Limited. The system of distribution differs from one State to another and so does the scale of allowances given to the distributors. Where the sale of superphosphate is being subsidised by the State Government, the incidental charges, even if heavy, do not operate as an obstacle to increased consumption. In Bombay, the State Government do not grant any subsidy on the distribution of superphosphate. In Madhya Pradesh also, the retail price of superphosphate is reported to be as high as Rs. 295 per ton. We recommend that since the increased use of superphosphate depends primarily on the price at which it is made available to the cultivator, the Central and the State Governments should review the existing arrangements for the distribution of superphosphate in various States and make a concerted effort to reduce the incidental charges to the minimum. In this connection, the desirability of exempting superphosphate from sales tax, where this has not been done already, should also be considered. The manufacturers have suggested that in some States (*e.g.* Bombay), it may be possible to effect a considerable saving in the incidental expenses connected with the distribution of superphosphate by entrusting the work of preparing mixture of superphosphate and other fertilisers to the superphosphate factories themselves. We recommend that the State Governments be requested to consider this suggestion. If the suggestion is adopted, it will be necessary to make suitable arrangements for inspection of the mixtures, in order to ensure that they conform to the specifications laid down by the State Governments. Whether the distribution of the mixtures should also be entrusted to the superphosphate factories or to other commercial firms is for the State Governments to decide in the light of local conditions.

(iv) As regards the suggestion made by the manufacturers at the time of the last inquiry that the allocation of sulphate of ammonia by the Central Government to the State Governments should be made conditional on the latter taking specific proportion of superphosphate, the proportion suggested being 10 lbs. of phosphoric acid for every 30 lbs. of nitrogen for the first year and 20 lbs. of phosphoric acid for every 30 lbs. of nitrogen for the next two years, it will be recalled that the Board had commended this suggestion to the authorities concerned for their careful consideration. It is generally agreed that the continued application of sulphate of ammonia by itself will result in a serious exhaustion of the soil, although it may give higher crop yields for some time, and that the use of mixed fertilisers is necessary in order to preserve soil fertility. In industrialised countries like the United States, about 70 to 80 per cent. of the fertilisers used are applied in the form of mixed fertilisers, composed mainly of three essential components, nitrogen, phosphoric acid and potash. The correct proportion between these three components, however, depends on a variety of factors, such as climatic conditions, the nature of the soil and the nature of the crop. Some soils are more deficient in phosphates than others and different crops absorb phosphoric acid and other plant foods in different proportions. Consequently, a uniform ratio between sulphate of ammonia and superphosphate may not suit the requirements of all parts of the country; and each State Government has to determine the most suitable combination of the two fertilisers in the light of the soil and climatic conditions and the crops grown in its own territory. For these reasons, the Ministry of Agriculture have not found it possible to adhere to any fixed ratio between the allocations of sulphate of ammonia and those of superphosphate to the various States. They have, however, time and again stressed the importance of mixing sulphate of ammonia with phosphatic fertilisers in suitable proportions and have insisted on the State Governments receiving a proportion of their fertiliser requirements in the form of superphosphate on that ground. In the case of the tea industry, the allocation of sulphate of ammonia has been made conditional on the industry taking a specific quantity of superphosphate. Moreover under the Malwa

Development Scheme, arrangements have been made to distribute 7,000 tons of fertiliser mixture composed of 2½ parts of superphosphate and 1 part of sulphate of ammonia. It is hoped that as a result of these measures, the cultivators will gradually get accustomed to the use of mixed fertilisers in course of time. At this stage, the Board would only recommend that the Central Government should continue, as they have done before, to link the allocations of sulphate of ammonia with those of superphosphate to the maximum possible extent, allowing sufficient discretion to the State Governments and other consuming interests to fix a suitable ratio between the two fertilisers according to local conditions.

(3) *Railway rates.*—The transport charge on the raw materials required for the manufacture of superphosphate and on the superphosphate itself together constitute an appreciable proportion of the final cost to the consumer, and the Board had, therefore, suggested in paragraph 17(f) of its earlier Report that the question of reduction in railway rates on sulphur, rock phosphate and superphosphate should be considered by the Railway Board at an early date. The matter was referred to the Railway Board who stated in their letter No. 4686-TC, dated 17th September, 1950, to the Ministry of Commerce that a reduction in rates on rock phosphate generally was not considered necessary. They added, hawever, that requests for suitable reductions in rates on rock phosphate between particular stations would be considered by the railway administrations concerned, if it was shown by facts and figures that the existing rates were unduly high and hampered the free movement of traffic. As regards superphosphate, while "manures" like oil cakes, farmyard refuse, etc., are classified 1st class and pay a rate which declines from 0·25 to 0·15 pie per maund per mile for traffic in wagon loads and from 0·49 to 0·40 pie per maund per mile for other traffic, "chemical manures" like superphosphate are classified 2nd class and pay a rate which declines from 0·48 to 0·23 pie per maund per mile for traffic in wagon loads and from 0;54 to 0·45 pie per maund per mile for other traffic. The Railway Board explained that a slightly higher scale of charges had been provided for chemical manures in view of their higher potency and prices as compared with other manures. In their opinion, the rate on superphosphate was already low, since the freight per ton at the rate applicable to traffic in wagon loads for a distance of 500 miles worked out to Rs. 25/6/- which was not more than 12½ per cent of the fair ex-factory prices of superphosphate recommended by the Tariff Board after the last inquiry. In the circumstances, the Railway Board did not consider any reduction in the rate on superphosphate to be necessary.

In March 1950, the Railway Board reduced the rate on sulphur for traffic in wagon loads. The revised rate is 0·48 pie per maund declining to 0·23 pie per maund as against the former rate of 0·73 pie per maund declining to 0·63 pie per maund. As regards rock phosphate, we understand that special rates have been granted by some railway administrations in response to the representations made by the manufacturers concerned. For example, the E. I. Railway have introduced a special rate of Rs. 33-1-1 per ton on rock phosphate between Howrah and Delhi with effect from 15th August, 1950. The B. B. & C. I. Railway have granted a reduction of Rs. 7/- per ton to the D. C. M. Chemical works against their request for Rs. 25/- per ton. The G. I. P. Railway introduced a special rate of 3 as. 6 ps. per maund on rock phosphate between Bombay and Hadapsar (the nearest station for the National Fertilisers) in 1948, in place of the rate of 5 as. 8 ps. per maund which was then in force, but increased it to 4 as. 6 ps. in September, 1950.

Since the Railway Board conveyed its decisions in the letter referred to above, the question of the railway rates on superphosphate and on the raw materials required for its manufacture was discussed at a meeting of the superphosphate Advisory Panel held at New Delhi on the 16th February, 1950, and it was agreed that the matter should be taken up again with the Railway Board. The recent reductions in the general rate on sulphur and the rates on rock phosphate between certain stations should give some relief to the industry, but we consider that since the industry is dependent on imported raw materials and the cost of production of superphosphate is already so high that its distribution has had to be subsidised by Government in order to bring this essential fertiliser within reach of the average cultivator, the question of revising the rates on superphosphate deserves further consideration by the Railway Board and the railway administrations concerned. We trust that in considering this question, due weight will be given to the benefits likely to accrue to the transport system itself and to the economy of the country as a whole from a wider application of this fertiliser and the increase in agricultural production resulting therefrom.

(4) *Transport of superphosphate in bulk.*—One of the suggestions made by the manufacturers at the first meeting of the Superphosphate Advisory Panel, with a view to reducing the cost of superphosphate to the consumer, was that the despatches of superphosphate from the factories to the State Governments should be made either in bulk or in single packing. At that meeting, the manufacturers offered a rebate of Rs. 29 per ton for supplies in bulk and Rs. 12-8-0 per ton for supplies in single packing. The suggestion has been examined by the Ministry of Agriculture in consultation with the Railways and was also discussed at the public inquiry. The consensus of opinion at the public inquiry was that it will not be desirable to send supplies in single packing. As regards transport in bulk, the S. I. Railway have advised that the loading of superphosphate in loose condition into wagons will require the installation of silos and that its unloading, if it is not to become a source of nuisance to the public and the railway staff, can be done only at those private sidings at which adequate arrangements exist for bagging and storage. These facilities may not be available to the average consignee at small stations. Besides, in many cases, superphosphate has to be transported by road or river over a considerable distance from the factory to the railway station. Moreover, it is yet to be investigated whether transport of superphosphate in bulk is likely to cause damage to wagons. We understand from the Ministry of Agriculture that the State Governments also have not reacted favourably to this suggestion, since they feel that bulk transport may result in substantial losses in transit. The whole question will presumably be further examined by the manufacturers as well as by the authorities concerned, but the evidence so far received does not afford much promise that transport in bulk can be resorted to generally as a means of bringing down the cost of superphosphate to the consumer.

(5) *Specifications for superphosphate.*—We understand from the Ministry of Agriculture that specifications for superphosphate have been fixed by the Central Government and communicated to the State Governments and producers. The Indian Standards Institution has also taken up the work of evolving standard specifications for superphosphate.

(6) *Delays in payment.*—The manufacturers receive payment from the Central Government for superphosphate despatched by them and recoveries from the State Government are made by the Central Government by book adjustment. 90 per cent. of the invoice value is paid to the manufacturer on receipt of the intimation about the despatch of the material and the remaining 10 per cent. on receipt of the consignee's acknowledgment. In respect of supplies made to any private party, full value of the material has to be deposited by the party into the Government treasury, before despatches are made. The manufacturers have represented that they are still experiencing considerable delays in payment, both with regard to the initial 90 per cent. and the final settlement. We recommend that steps should be taken to expedite payments for superphosphate despatched by the factories.

(7) *Sea freight.*—At the time of the last inquiry, the American Shipping lines were charging a surcharge of 25 per cent. on freight on sulphur from the United States ports to Bombay. This surcharge has since been abolished. Besides, the manufacturers have now made arrangements for import of sulphur in chartered vessels and this has resulted in considerable saving in freight and packing charges.

**Summary of conclusions and recommendations.**

10. Our conclusions and recommendations may be summarised as follows:—

(i) The installed capacity of the 13 factories regularly engaged in the production of superphosphate has increased from 81,000 tons in 1949 to 143,850 tons. Several of these factories have plans for further expansion. [Paragraph 3 (a) and (b)]

(ii) Production of superphosphate in India showed a progressive increase from 13,794 tons in 1947 to 22,438 tons in 1948 and 50,641 tons in 1949. During the first 9 months of 1950 the 13 factories within the Phosphate Pool produced 33,674 tons. [Paragraph 3 (c)]

(iii) Despatches of superphosphate from factories from the commencement of the Pool in February 1949 to the end of June 1950 amounted to 40,740 tons, in addition to an estimated annual consumption of 4,000/5,000 tons of bone meal and crushed bones, as compared with the annual consumption target of 100 000 tons of superphosphate and bone meal fixed by the Ministry of Agriculture in 1949. The demand for superphosphate has, however, shown a marked improvement of late. On the basis of the requirements communicated to the Pool by the State Governments and the tea and coffee plantations, the demand in 1951 is expected to be 75,000 tons or more. [Paragraph 3 (d)]

(iv) The potential requirements of the country for superphosphate have been estimated at 320,000 tons of P205 (equivalent to 2 million tons of 16 per cent. superphosphate) per year at the minimum. [Paragraph 3 (d)]

(v) An investigation needs to be carried out as to the country's requirements for different types of fertilisers, having regard to the actual soil and climatic conditions in different parts of the country and requirements of different crops. Any plans for the future development of the fertiliser industry may have to be modified in the light of the results of such investigation. Even if it is found desirable, as a result of such investigation, to encourage the production of dicalcium phosphate or triple superphosphate in future, there would still remain considerable scope for the expansion of the single superphosphate industry. (Paragraph 4)

(vi) The following are considered to be the fair ex-works prices of sulphuric acid and superphosphate (excluding transport charges on raw materials from the port to the factory and on superphosphate from the factory to the nearest railway station) for a national representative unit.

*Sulphuric acid:*

Rs. 142·79 per ton for the period from 14th March to 31st December 1950, and

Rs. 170·21 per ton for 1951.

*Superphosphate:*

Rs. 183·14 per ton for the period from 14th March to 31st December 1950, and

Rs. 200·03 per ton for 1951. [Paragraph 7 (f)]

(vii) The fair prices of superphosphate, f.o.r. the nearest railway station, for the 13 factories in the Pool for the period from 14th March to 31st December 1950 and for 1951 should be as specified in paragraph 7 (i). The excess payments due to be recovered from the factories on the basis of the fair prices now recommended by the Board, should, as far as practicable, be adjusted against the payments to be made to them for future supplies.

(viii) The position in regard to the cost of sulphur and rock phosphate should be reviewed by Government by the end of June 1951 and, in the event of a significant change in the cost of these materials, the prices recommended in paragraph 7 (i) should be adjusted for the following half year in accordance with the formulae given in paragraph 7 (j).

(ix) The question of admitting new units to the Pool should be deferred until there is a clear prospect of a substantial increase in the demand for superphosphate above the present level. [Paragraph 7 (k)]

(x) The industry should be given all possible assistance in securing its requirements of sulphur from the United States. If an adequate supply of sulphur becomes available, no special measures will be required to conserve the available supplies of this material and to regulate its price. However, a careful watch should be kept over the supply and prices of sulphur and sulphuric acid, since these materials are essential to the superphosphate and many other industries. The manufacturers should try their utmost to make up for the rise in the cost of sulphur by effecting economies in their manufacturing expenses. [Paragraph 9 (i) (b)]

(xi) If the main objects of the Pool, namely, the preservation of soil fertility and the expansion of agricultural production, are to be effectively realised, and if the responsibilities involved in the arrangement whereby the factories are required to sell exclusively to the Pool are to be fully implemented, it is necessary that the State Governments should pay greater attention than they have done hitherto to the need for undertaking an intensive campaign to educate the cultivator in the use of superphosphate. The demands for superphosphate from the various States should be formulated with due regard to the extent to which such campaign is proposed to be carried out, either by the State Governments or by others, and the results expected therefrom. [Paragraph 9 (2) (i)]

(xii) With regard to the scheme for constituting a Superphosphate Development Board to popularise the use of superphosphate, the manufacturers themselves should be prepared to bear a substantial part of the cost of the scheme as a long-term investment. Moreover, the scheme has not yet been evolved in sufficient detail to justify an extra burden being placed on the consumer immediately for the purpose of financing it. [Paragraph 9 (2) (i)]

(xiii) In view of the paramount necessity for taking all possible measures to secure an increase in food production, those State Governments which are at present not subsidising the distribution of superphosphate should be requested to do so, to whatever extent possible, in order that superphosphate may be used in their territories on a larger scale. [Paragraph 9 (2) (ii)]

(xiv) Since the increased use of superphosphate depends primarily on the price at which it is made available to the cultivator, the Central and the State Government should review the existing arrangements for the distribution of superphosphate in various States and make a concerted effort to reduce the distribution charges to the minimum. In this connection, the desirability of exempting superphosphate from sales tax, where this has not been done already, should also be considered. [Paragraph 9 (2) (iii)]

(xv) The State Governments should be requested to consider the suggestion made by the manufacturers that the work of preparing fertiliser mixtures should be entrusted to the superphosphate factories, with a view to effecting a saving in the distribution charges on superphosphate. [Paragraph 9 (2) (iii)]

(xvi) The Central Government should continue to link the allocations of sulphate of ammonia with those of superphosphate to the maximum possible extent, allowing sufficient discretion to the State Governments and other consuming interests to fix a suitable ratio between the two fertilisers according to local conditions. [Paragraph 9 (2) (iv)]

(xvii) The recent reductions in the railway rates on sulphur generally and those on rock phosphate between certain stations have given some relief to the industry, but the question of revising the rates on superphosphate deserves further consideration by the authorities concerned. [Paragraph 9 (3)]

(xviii) The evidence so far available does not afford much promise that transport in bulk can be resorted to generally as a means of bringing down the cost of superphosphate to the consumer. [Paragraph 9 (4)]

(xix) Steps should be taken to expedite payments for superphosphate despatched by the factories. [Paragraph 9 (6)]

**Acknowledgments** 11. The Board wishes to acknowledge the co-operation it has received from the representatives of the industry. The Board has also received much useful information and expert advice from Mr. S. T. Raja, Deputy Secretary, Ministry of Agriculture, Government of India. He participated in the public inquiry and his co-operation on that occasion was of special value to the Board. The Board's thanks are also due to Mr. M. N. Kale, Assistant Development Officer, D.G., I & S., Mr. R. Sundaram, Cost Accounts Officer, Mr. S. V. Rajan, Assistant Cost Accounts Officer and Mr. S. S. Mehta, Technical Adviser, for their assistance at various stages of this investigation.

H. L. Dey,
*President*

B. N. Adarkar,
*Member*

M. A. Mulky,
*Secretary*

BOMBAY,
*Dated*, *4th January*, 1951.

सत्यमेव जयते

## APPENDIX I

(*Vide* paragraph 1)

No. 3-T/A(1)/50.
Government of India,
Ministry of Commerce,
*New Delhi, the 20th April,* 1950.

FROM

H. K. Kapoor, Esquire,
Assistant Secretary to the Government of India.

To

The Secretary,
Indian Tariff Board,
BOMBAY

Sub:—*Revision of the fair ex-factory prices of superphosphate.*

SIR,

I am directed to say that the first meeting of the Superphosphate Advisory Panel set up by the Ministry of Agriculture on the recommendation of the Tariff Board in para 17 (i) of their report on the fair ex-works prices of superphosphate was held in that Ministry on the 16th February, 1950.*** As indicated in para 1 of the proceedings, the manufacturers agreed to consider the question of reducing the price of the finished product as a result of reduction in the price of rock phosphate and certain other factors. The following 8 out of the 11 members of the 'Phosphatic Pool' have since expressed their willingness to have their ex-factory prices reduced by Rs. 14/- per ton with immediate effect *i.e.* from 14th March, 1950.

1. M/s. Parry & Co. Ltd., Madras.
2. M/s. Dharamsi Morarji Chemical Co. Ltd., Bombay.
3. M/s. Anil Starch Products Ltd., Ahmedabad.
4. M/s. D.C.M. Chemical Works, Delhi.
5. M/s. Fertilizers & Chemicals (Travancore) Ltd., Alwaye.
6. M/s. Sonawala Industries Ltd., Bombay.
7. M/s. Western Chemical Industries, Bombay.
8. M/s. National Fertilisers Ltd., Poona.

The remaining 3 firms *Viz.*, (1) M/s. Eastern Chemical Company, Bombay; (2) M/s. Hyderabad Chemicals & Fertilisers Ltd., hyderabad; and (3) M/s. Mysore Chemicals and Fertilisers Ltd., Mysore, however are not willing to reduce their prices.

2. I am, now to invite a reference in this connection to para. 16 of the Board's report under which Government are required to review the question of prices in case of decrease of cost of production of superphosphate by Rs. 10/- or more. While Government are not in possession of the details of the cost of production in order to verify the reasonableness or otherwise of the reduction of Rs. 14/- per ton offered by the 8 members, it has been decided to accept the reduced ex-factory prices provisionally without prejudice to the review of the cost in the light of the Tariff Board's findings. Taking into account the reduced ex-factory prices, the Government of India have decided to reduce the 'Pool price' of the material from Rs. 227/- per ton to Rs. 207/- per ton with immediate effect. In calculating the 'pool price' the production of the three firms who have not made a voluntary cut in their prices have been taken into account for a period of three months only *i.e.* upto 30th June, 1950. Similarly in view of the feasibility of a further reduction in the ex-works price of the produce of M/s. National Fertilisers Ltd., Poona in view of their having started producing sulphuric acid at their own works, the production of this firm for three months only has been taken into account in arriving at the 'pool price'. of Rs. 207/- per ton. It is accordingly requested that while reviewing the ex-factory prices of the superphosphate from 1st July, 1950, the Tariff Board may also examine the cost of production of all the factories during March-June, 1950 in order to enable the Ministry of Agriculture to finalise the 'pool price' of Rs. 207/- per ton fixed provisionally at present up to 30th June, 1950. It is requested that this work may be attended to immediately since the new price will be operative from 1st July 1950.

3. I am further to add that it has been decided to include the produce of M/s. The Phosphate Company Ltd., 14—Netaji Subhas Road, Calcutta in the 'Phosphatic Pool' on the condition that they agree to fall in line with the other port-town factories with regard to their selling ex-factory price of superphosphate *i.e.* Rs. 210/- less Rs. 14/- *viz.*, Rs. 196/- per ton on a provisional basis subject to final adjustment on the recommendation of the Tariff Board. It is accordingly requested that the Board may also kindly fix fair ex-factory price of superphosphate produced by this Company in the course of next review.

4. M/s. The Premier Chemicals, Mysore, M/s. Alembic Chemicals, Baroda and Star Chemicals, Baroda have also started production of Superphosphates and they have requested that they should be included in the pool, the price of superphosphate manufactured by them may also be reviewed.

5. The reduced prices, both ex-factory and pool will be purely provisional, subject to finalisation in accordance with the recommendation of the Tariff Board.

Yours faithfully,

(Sd.) H. K. Kapoor,
*Assistant Secretary to the Government of India.*

# APPENDIX II

(*Vide* paragraph 1)

No. 3-T/A(1)/50.
Government of India,
Ministry of Commerce,
*New Delhi, the 26th December*, 1950.

FROM

W. A. Rose, Esquire,
Under Secretary to the Government of India,

To

The Secretary,
Indian Tariff Board,
Contractor Building, Nicol Road,
Ballard Estate,
BOMBAY.

Subject:—*Revision of the fair ex-works prices of superphosphate.*

SIR,

With reference to the correspondence resting with your letter No. TB/P-4, dated the 27th November 1950, on the above subject, I am directed to say that the Ministry of Agriculture agree to the proposal that the fair ex-works prices of superphosphate to be fixed by the Tariff Board may relate to the periods (i) March to December 1950, and (ii) January-December 1951.

Yours faithfully,
(Sd.) W. A. Rose,
*Under Secretary to the Government of India.*

## APPENDIX III

(*Vide* paragraph 2)

*List of persons to whom questionnaires were issued and those who replied to them.*

*Those who replied to the questionnaire.
†Those who sent the rated capacity form only.

PRODUCERS—

*1. Anil Starch Products Ltd., Anil Road, Ahmedabad.
*2. Alembic Chemical Works Co. Ltd., Baroda.
*3. Dharamsi Morarji Chemical Company, Hornby Road, Fort, Bombay.
†4. Hyderabad Chemicals and Fertilisers Ltd., Hyderabad, Deccan.
*5. D. C. M. Chemical Works, Najafgarh Road, Delhi.
*6. Eastern Chemical Company, J. K. Building, Dougall Road, Ballard Estate, Bombay.
*7. Fertilisers and Chemicals (Travancore) Ltd., Alwaye, Travancore.
†8. Mysore Chemicals and Fertilisers Ltd., Belagula, Mysore.
*9. National Fertilisers Ltd., Indu House, Dougall Road, Ballard Estate, Bombay.
*10. Parry & Company, Post Box No. 12, Madras.
*11. Phosphate Company Ltd., 14, Netaji Subhas Road, Calcutta.
*12. Premier Chemical Industries, 314, Dewans Road, Mysore.
†13. Sonawala Industries, Ltd., 137, Sheikh Memon Street, Bombay.
*14. Star Chemical Works, Pratap Nagar, Baroda.
*15. Western Chemical Industries, Goregaon East, Post Malad, Bombay,

IMPORTERS—

*1. Imperial Chemical Industries (India) Ltd., Chemical Deptt., Imperial Chemical House, Dougall Road, Ballard Estate, Bombay.
2. Nanavati & Co. Ltd., 16, Appollo Street, Bombay.

## APPENDIX IV

(*Vide* paragraph 2)

*List of persons who attended the Board's public inquiry and gave evidence.*

| | *Names of the representatives.* |
|---|---|
| I. PRODUCERS— | |
| 1. Dharamsi Morarji Chemical Co., Prospect Chambers, Hornby Road, Fort, Bombay. | Shri P. R. Morarji.<br>Shri D. R. Morarji. |
| 2. Parry & Co., Post Box No. 12 Madras. | Mr. S. G. H. Davis.<br>Shri John K. John.<br>Shri K. S. Subramaniam. |
| 3. D. C. M. Chemical Works, Najafgarh Road, Delhi. | Shri L. Charat Ram.<br>Shri T. P. Chatterji.<br>Shri Shah.<br>Shri N. C. Gour. |
| 4. Fertilisers & Chemicals Udyogmandal, Alwaye, Travancore. | Shri T. Velupillai. |
| 5. Anil Starch Products, Anil Road, Ahmedabad. | Shri Chinubhai Manibhai. |
| 6. Eastern Chemical Co., J. K. Building, Dougall Road, Ballard Estate, Bombay. | Shri N. S. V. Sarathy.<br>Shri C. Krishnamoorthy. |
| 7. Hyderabad Chemicals & Fertilisers, Hyderabad (Deccan). | Mr. O. J. Stern.<br>Mr. A. A. Rahimtula. |
| 8. Indian Chemical Mfrs' Association, Srinivas House, Outram Road, Fort, Bombay. | Dr. L. A. Bhatt. |
| 9. National Fertilisers, Indu House, Dougall Road, Ballard Estate, Bombay. | Mr. Eric Ellis. |
| 10. Western Chemical Industries Goregaon East, Post Malad, Bombay. | Shri M. D. Patel.<br>Shri C. H. Dave. |
| 11. Alembic Chemical Works Co. Ltd., Baroda. | Shri C. I. Amin. |
| 12. Sonawalla Industries, 137, Sheikh Memon Street, Bombay. | Shri Sunderlal Chhaganlal.<br>Shri V. S. Mehta. |
| 13. Phosphate Co., 14, Netaji Subhas Road, Calcutta. | Shri B. M. Khaitan. |
| 14. Premier Chemical Industries, 314, Dewans Road, Mysore. | Shri M. N. Basavarajiah. |

| | *Names of the representatives.* |
|---|---|
| II. IMPORTERS— | |
| 1. Imperial Chemical Industries (India) Ltd., Imperial Chemical House Dougall Road, Ballard Estate, Bombay. | Mr. Stevenson. |
| 2. Nanavati & Co., 16, Appollo Street, Bombay. | Shri Shahane. |
| III. CONSUMERS— | |
| 1. Bombay Provincial Co-operative Marketing Society, Ltd., Ismail Building, Hornby Road, Fort, Bombay. | Shri A. S. Bhise. |
| 2. Agri-orient Industries, Ibrahim Building, 98, Medows Street, Fort, Bombay. | Shri P. N. Ranade. |
| *Government Representatives*— | |
| 1. Ministry of Agriculture, (Government of India) New Delhi. | Shri S. T. Raja. |
| 2. Directorate General of Industries & Supplies (Government of India), New Delhi. | Shri M. N. Kale. |

# APPENDIX V

(*Vide* paragraph 3)

*(a) Statement showing the installed capacity for the production of sulphuric acid and actual production during 1948, 1949 and January to September 1950, and estimated production during 1950 (October to December), 1951 and 1952*

(In tons)

| Name of producer | | Present annual installed capacity | Actual production | | | Estimated production | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|
| | | | 1948 | 1949 | 1950 (Jan.-Sept.) | 1950 (Oct.-Dec.) | 1951 | 1952 | |
| 1. Anil Starch Products Ltd., Ahmedabad | Contact | 3,200 | 803 | 2,243 | 1,152 | 960 | 3,200 | 3,200 | |
| 2. D.C.M. Chemical Works, Delhi. | Chamber | 1,880 | 1,030 | 1,935 | 1,352 | 500 | 1,880 | 1,880 | |
| | Contact | 3,100 | 3,416 | 3,132 | 2,395 | 900 | 3,100 | 3,100 | |
| 3. Dharamsi Morarji Chemical Co. Ltd., Bombay. | Chamber | 4,600(*a*) | 2,667 | 3,587 | 2,685 | 1,100 | 6,000 | 7,500 | (*a*) The firm is planning to increase capacity to 7,500 tons per annum by putting up additional chambers. |
| | Contact | 3,600 | 1,569 | 3,003 | 2,452 | 900 | 3,500 | 3,500 | |
| 4. Eastern Chemical Co. (India) Bombay. | Contact | 3,500 | 2,293 | 2,912 | 2,331 | 800 | 3,200 | 3,200 | |
| 5. Fertilisers & Chemicals (Travancore) Ltd., Alwaye. | Contact | 23,600 | 14,891 | 19,736 | 8,882 | 10,660 | 37,170(*b*) | 42,480(*b*) | (*b*) With the help of a new plant. |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Hyderabad Chemicals & Fertilisers Ltd., Hyderabad. | Chamber | 2,472 | 975 | 1,364 | 1,439 | 800 | 2,000 | 2,000 | |
| 7. Mysore Chemicals & Fertilisers Ltd., Mysore | Contact | 7,500 | 2,559 | 2,880 | 2,419 | 2,000 | 6,000 | 6,400 | |
| 8. West India Chemicals, Poona (*c*) | Contact | .. | .. | .. | .. | .. | .. | — | (*c*) The firm expects to go into production by end of Dec. '50. Capacity 3,400 tons of contact acid. |
| 9. Parry & Co., Ltd., Madras (The East India Distilleries and Sugar Factories Ltd., Madras) | Chamber | 4,600 | 3,137 | 4,453 | 2,232 | 1,600 | 2,250<br>5,250 (*d*) | 1,000<br>9,000(*d*) | (*d*) New contact plant with a capacity of 9,000 tons expected to go into production from 1-6-1951. |
| 10. Sonawala Industries Ltd., Bombay | Contact | 2,940 | 2,008 | 2,244 | 2,000 | 790 | 2,940 | 2,940 | |
| 11. Western Chemical Industries, Bombay | Chamber | 1,000 | 400 | 532 | 400 | 200 | 1,000 | 1,000<br>+ 3,000 | (Contact) |
| TOTAL | | 61,992 | 35,757 | 48,021 | 29,759 | 21,210 | 77,490 | 90,200 | |

*(b) Statement showing the installed capacity for the production of Superphosphate and actual production during 1948, 1949 and January to September 1950, and estimated production during 1950 (October to December), 1951 and 1952*

(In tons)

| Name and address of the factory | Present annual capacity based on three shifts | Actual production |  |  | Estimated production |  |  | Remarks |
|---|---|---|---|---|---|---|---|---|
|  |  | 1948 | 1949 | 1950 (Jan.-Sept.) | 1950 (Oct.-Dec.) | 1951 | 1952 |  |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1. Anil Starch Products Ltd., Anil Road, Ahmedabad. | 12,000 | 339 | 4,965 | 1,682 | 1,950 | 7,200 | 12,000 |  |
| 2. D. C. M. Chemical Works, Najafgarh Road, Delhi. | 6,000 | 4,807 | 6,009 | 4,334 | 1,550 | 6,000 | 6,000 |  |
| 3. Dharamsi Morarji Chemical Co. Ltd., Ambernath, G.I.P. | 24,000 | 5,074 | 9,949 | 7,104 | 3,500 | 16,000 | 24,000 |  |
| 4. Eastern Chemical Co. (India) Ltd., Rowlee Hill, Sian. | 9,000 | .. | 2,075 | 8,673 | 1,000 | 4,200 | 4,200 |  |
| 5. Fertilisers and Chemicals, Travancore Ltd., Alwaye. | 14,000 | 5,201 (April-Dec.) | 11,232 | 4,016 | 4,500 | (a)40,000 | 50,000 | (a) With the erection of the new plant. |
| 6. Hyderabad Chemicals & Fertilisers Ltd., Belampalli, N. S. Rly. | 15,600 | .. | 2,763 | 3,836 | 1,775 | 5,600 | 5,600 | Capacity at present limited to 5,600 tons due to limited supply of acid. |
| 7. Mysore Chemicals & Fertilisers Ltd., Belagula, Mysore. | 4,500 | 237 | 1,038 | 1,384 | 500 | 5,000 | 6,000 |  |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 8. National Fertilisers Ltd., Vadagaon Sheri, Poona. | 11,250 | 1,235 (July-Dec.) | 3,198 | 2,496 | 900 | 12,000* | 12,000 to 15,000 | * Capacity at present limited to 4,000 tons due to limited supply of acid. |
| 9. Parry & Co., Ltd., Ranipet (Madras) | 10,000 | 5,435 | 7,100 | 5,169 | 2,100* | 13,250 | 25,000* | * Estimated production of the new plant with double the capacity at present. |
| 10. Sonawala Industries Ltd., Kalyan, Bombay. | 8,000 | 60 | 2,489 | .. | 1,200 | 5,500 | 5,500 | Capacity based on single shift. |
| 11. Western Chemical Industries, Goregaon East, Malad. | 1,600 | 50 | 520 | 768 | 500 | 1,000 | 5,000 | |
| 12. Phosphate Co. Ltd., Calcutta | 12,000 | .. | .. | 1,618 | 2,000 | 10,700 | 12,000 | |
| 13. Premier Chemicals, Mysore . | 6,000 | .. | 1,349 | 400 | 1,000 | .. | .. | |
| 14. Alembic Chemicals Ltd., Baroda | 8,100 | .. | .. | .. | .. | 8,100 | 8,100 | Plant ordered, not in production. |
| 15. Star Chemical Works, Baroda . | 1,800 | .. | .. | .. | .. | .. | .. | No production. |
| TOTAL . | 1,43,850 | 22,438 | 50,641 | 33,674 | 22,475 | 1,34,550 | 1,67,300 | |

## APPENDIX VI

[*Vide* para. 8]

(*a*) *Allocations made by the Pool for the period February to June 1949.*

| Name of the State<br>1 | Quantity in tons<br>2 | Source of Supply<br>3 |
|---|---|---|
| West Bengal | 500 | D. C. M. Chemical Works, Delhi. |
| Bihar | 1,700 | Do. |
| C. P. and Berar | 3,000 | Do. |
| U. P. | 1,631·25 | Do. |
| East Punjab | 50 | Do. |
| East Punjab States Union | 20 | Do. |
| Orissa | 87 | Do. |
| Saurashtra Union | 10 | Anil Starch Products, Ahmedabad. |
| Matsya Union | 2 | D. C. M. Chemical Works, Delhi. |
| Jaipur | 1 | Do. |
| Bikaner | 5 | Do. |
| Delhi | 10 | Do. |
| Bombay | 11,000 | Dharamsi Morarji Chemical Company, Bombay.<br>Sonawala Industries Ltd., Bombay.<br>Anil Starch Products, Ahmedabad.<br>Western Chemical Industries Post Malad, Bombay. |
| Madras | 7,273 | Fertilizers & Chemicals Travancore Ltd., Alwaye.<br>Parry & Co., Madras<br>Hyderabad Chemical and Fertilizers Ltd., Hyderabad. |
| Mysore | 3,830 | Mysore Fertilizers & Chemicals Ltd., Mysore.<br>Fertilizers & Chemicals Travancore Ltd., Alwaye.<br>NationalFertilizers Ltd., Poona. |

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| 1 | 2 | 3 |
|---|---|---|
| Assam . . . . . | Nil. | |
| Travancore . . . . | 1,000 | Fertilizers & Chemicals Travancore Ltd., Alwaye. |
| United Planters' Association of (S. I.) Coonor. | 500 | Parry & Co., Madras. |
| Kolhapur . . . . . | 500 | National Fertilizers Ltd., Poona. |
| Bhopal . . . . . . | 40 | Anil Starch Products Ltd., Ahmedabad. |
| Baroda . . . . . . | 600 | Do. |
| | 31,759·25 | |

(*b*) *Allocations made by the Pool in September, 1949 for the period July 1949 to June 1950*

| Name of the State<br>1 | Quantity in tons<br>2 | Source of supply<br>Producers<br>3 | Source of supply<br>Quantity in tons<br>4 |
|---|---|---|---|
| Bombay . . . | 15,000 | (1) Dharamsi Morarji, Bombay. | 13,000 |
| | | (2) Eastern Chemical Co., Bombay. | 2,000 |
| Madras . . . | 41,000 | (1) Parry & Co. . . .<br>(2) Fertilisers & Chemicals, Travancore.<br>(3) Hyderabad Chemicals, Hyderabad. | 35,000 |
| | | (4) Sonawala Industries, Bombay. | 6,000 |
| Bihar . . | 10,500 | D. C. M. Chemical Works, Delhi. | 10,500 |
| West Bengal . . | 2,500 | Do. . . . | 2,500 |
| C. P. & Berar . . | 6,945 | Anil Starch Products, Bombay. | 6,945 |
| U. P. . . . | 2,000 | D. C. M. Chemical Works, Delhi. | 2,000 |
| East Punjab . . | 300 | Do. . . . | 300 |
| Orissa . . . | 500 | Hyderabad Chemicals, Hyderabad. | 500 |

| 1 | 2 | 3 | 4 |
|---|---|---|---|
| P. E. P. S. U. . . | 50 | D. C. M. Chemical Works, Delhi. | 50 |
| Rajasthan. . . | 50 | Do. . . . | 50 |
| Mysore . . . | 8,000 | National Fertilizers, Bombay<br>Mysore Chemicals, Mysore. | 4,000<br>4,000 |
| Travancore & Cochin | 5,000 | Fertilizers and Chemicals, Travancore. | 5,000 |
| Bhopal . . . | 50 | D. C. M. Chemical Works, Delhi. | 50 |
| Madhya Bharat . | 100 | Do. . . . | 100 |
| Hyderabad . . | 500 | Hyderabad Chemicals, Hyderabad. | 500 |
| Coorg . . . | 400 | Parry & Co. . . . | 400 |
| Sugar Factories in—<br>(1) U. P., (2) Bihar,<br>(3) Bombay,<br>through Dir. I.I.S.T. | 3,750 | D. C. M. Chemical Works, Delhi.<br>Eastern Chemicals, Bombay.<br>Western Chemicals, Bombay. | 3,750 |
| U. P. A. S. I. & Coffee Board | 2,000 | Sonawala Industries<br>Parry& Co. . . . | 1,000<br>1,000 |
| Tea Controller of India | 2,000 | D. C. M. Chemical Works, Delhi. | 2,000 |
|  | 1,00,645 |  |  |

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*(c) Allocations made by the Pool in March 1950 for the calendar year 1950*

| Name of the State<br>1 | Quantity in Tons<br>2 | Producer<br>3 | Quantity in Tons<br>4 |
|---|---|---|---|
| Madras . . . | 33,900 | Parry & Co. . . . | 2,000 |
|  |  | F. A. C. T. . . . | 15,000 |
|  |  | National Fertilizer. Poona . | 3,000 |
|  |  | Dharamsi Morarji, Bombay . | 4,000 |
|  |  | Eastern Chemicals . . | 500 |
|  |  | Sonawala Industries . | 1,000 |
|  |  | Western Chemicals . . | 250 |
|  |  | Hyderabad Chemicals . . | 2,000 |
|  |  |  | 27,950 |
|  |  | Balance to be allocated . | 5,950 |
|  |  | Total . | 33,900 |

| 1 | 2 | 3 | 4 |
|---|---|---|---|
| **Mysore** | 5,000 | Mysore Chemicals | 500 |
| | | Premier Chemicals | 500 |
| | | | 1,000 |
| | | Balance to be allocated | 4,000 |
| **Travancore and Cochin** | 5,000 | F. A. C. T. | 5,000 |
| **Bombay** | 15,000 | Dharamsi Morarji, Bombay | 7,300 |
| | | Eastern Chemicals | 500 |
| | | Sonawala Industries | 1,300 |
| | | Western Chemicals | 250 |
| | | Anil Starch Products | 4,700 |
| | | | 14,050 |
| | | Balance to be allocated | 950 |
| | | Total | 15,000 |
| **Madhya Pradesh** | 5,000 | Dharamsi Morarji, Bombay | 2,000 |
| | | Anil Starch | 2,000 |
| | | D. C. M. Chemicals | 1,000 |
| | | Total | 5,000 |
| **Saurashtra** | 2,100 | Anil Starch, Ahmedabad | 600 |
| | | Dharamsi Morarji | 1,000 |
| | | Eastern Chemicals | 500 |
| | | Total | 2,100 |
| **Rajasthan** | 100 | Anil Starch Ahmedabad | 100 |
| **Uttar Pradesh** | 2,000 | D. C. M. Chemical Works | 2,000 |
| **Punjab (I)** | 500 | Do. | 500 |
| **Bihar** | 7,000 | Do. | 7,000 |
| **West Bengal** | 500 | Phosphate Co., Calcutta | 100 |
| **Orissa** | 500 | Do. | 500 |
| **Assam** | 100 | Do. | 100 |
| **Tea Industry** | 10,000 | D. C. M. Chemical Works, Delhi. | 2,005 |
| | | Phosphate Co. Ltd., Calcutta | 3,985 |
| | | Dharamsi Morarji, Bombay | 2,010 |
| | | Sonawala Industries, Bombay | 1,250 |
| | | Eastern Chemicals, Bombay | 500 |
| | | Western Chemicals, Bombay | 250 |
| | | Total | 10,000 |
| **U. P. A. S. I.** | 2,000 | Parry & Co., Madras | 2,000 |
| **Hyderabad** | 1,000 | Hyderabad Chemicals | 1,000 |
| | 89,800 | | |

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*(d) Despatches by manufacturers against allocations made by the Pool*

| Name of firm | February to June, 1949<br>Tons | July to December 1949<br>Tons | January to June 1950<br>Tons |
|---|---|---|---|
| National Fertilizers Ltd., Poona . | 1,047 | 2,888 | 1,200 |
| D.C.M. Chemical Works, Delhi . | 2,888 | 1,952 | 3,553 |
| Dharamsi Morarji & Co., Bombay. | 2,020 | 5,130 | 2,910 |
| Anil Starch Products Ltd., Ahmedabad . . . . . . | 150 | 2,935 | 2,247 |
| Parry & Co., Ltd., Madras . . | 280 | 3,716 | 1,052 |
| Western Chemical Industries Ltd., Bombay . . . . . . | 153 | 75 | 250 |
| Sonawala Industries Ltd., Bombay | .. | 690 | 160 |
| Hyderabad Chemicals & Fertilizers Ltd., Hyderabad . . . | .. | 1,574 | 2,020 |
| Fertilizers & Chemicals Travancore Ltd., Alwaye . . . . . | .. | 1,099 | 700 |
| Eastern Chemicals Ltd., Bombay . | .. | .. | 100 |
| Mysore Fertilizers & Chemicals Ltd., Mysore . . . . . | .. | .. | 550 |
| TOTAL . . | 6,538 | 19,460 | 14,742 |

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## APPENDIX VII

[*Vide* Paragraph 7 (g) (i)]

(c) *Statement showing the railway/steamer freight on raw materials per ton of superphosphate for each member of pool for the period 14th March to 31st December, 1950*

| Serial No. | Name of the producer | Port and Station | Railway/steamer freight per ton of | | | Railway/Steamer freight per ton of superphosphate on sulphur, nitre and rock |
|---|---|---|---|---|---|---|
| | | | Sulphur | Nitre | Rock phosphate | |
| | 1 | 2 | 3 | 4 | 5 | 6 |
| | | | Rs. | Rs. | Rs. | Rs. |
| 1. | Fertilisers & Chemicals (Travancore) Ltd., Alwaye | Cochin to Alwaye | 6 0 0 | 6 0 0 | 6 0 0 | 4·61 |
| 2. | Parry & Co. Ltd., Madras | Madras to Ranipet | 7 7 2 | 7 7 2 | 7 7 2 | 5·73 |
| 3. | Dharamsi Morarji Chemical Co. Ltd., Bombay | Bombay to Ambernath | 5 4 0 | 5 4 0 | 5 4 0 | 4·04 |
| 4. | D. C. M. Chemical Works, Delhi | Bombay to Delhi | 46 3 9 | 37 9 4 | 38 5 0 | 30·59 |
| 5. | Hyderabad Chemicals & Fertilisers Ltd., Belampalli | Bombay to Belampalli | 37 14 4 | .. | .. | .. |
| | | Madras to Belampalli | .. | 31 5 10 | 24 15 8 | 21·06 |
| 6. | Sonawala Industries Ltd., Bombay | Bombay to Kalyan | 5 1 0 | 5 1 0 | 5 1 0 | 3·90 |
| 7. | National Fertilisers Ltd., Poona | Bombay to Hadapsar | .. | .. | 7 10 8 | 4·78 |
| 8. | Anil Starch Products Ltd., Ahmedabad | Bombay to Ahmedabad | 22 13 9 | 18 4 7 | 18 2 0 | 14·61 |
| 9. | Mysore Chemicals & Fertiliers Ltd., Mysore | Madras to Belagula | 35 1 6 | 35 1 6 | 18 15 6 | 16·93 |
| 10. | Premier Chemical Industries, Mysore | Madras to Mysore | .. | .. | 19 14 6 | 12·42 |
| 11. | Eastern Chemical Co., Bombay | Bombay to Vadala | 1 0 0 | 1 0 0 | 1 0 0 | 0·76 |
| 12. | Western Chemical Industries, Bombay | .. | .. | .. | .. | .. |
| 13. | Phosphate Co. Ltd., Calcutta | Calcutta to Rishra | .. | .. | 7 8 0 | 4·68 |

(b) *Statement showing the Railway/Steamer freight on raw materials per ton of Superphosphate for each member of the Pool for the year ended 31st December, 1951.*

| Serial No. | Name of the producer | Port and station | Railway/Steamer freight per ton of Sulphur | Nitre | Rock phosphate | Railway/Steamer freight per ton of superphosphate on sulphur, nitre & rock |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| | | | Rs. | Rs. | Rs. | Rs. |
| 1. | Fertilisers & Chemicals (Travancore) Ltd., Alwaye | Cochin to Alwaye | 6 0 0 | 6 0 0 | 6 0 0 | 4·45 |
| 2. | Parry & Co. Ltd., Madras | Madras to Ranipet | 7 7 2 | 7 7 2 | 7 7 2 | 5·52 |
| 3. | Dharamsi Morarji Chemical Co. Ltd., Bombay | Bombay to Ambernath | 5 4 0 | 5 4 0 | 5 4 0 | 3·89 |
| 4. | D. C. M. Chemical Works, Delhi | Bombay to Delhi | 46 3 9 | 37 9 4 | 38 5 0 | 29·44 |
| 5. | Hyderabad Chemicals & Fertilisers Ltd., Belampalli | Madras to Belampalli | 31 5 10 | 31 5 10 | 24 15 8 | 19·39 |
| 6. | Sonawala Industries Ltd., Bombay | Bombay to Kalyan | 5 1 0 | 5 1 0 | 5 1 0 | 3·75 |
| 7. | National Fertilisers Ltd., Poona | Bombay to Hadapsar | .. | .. | 7 10 8 | 4·62 |
| 8. | Anil Starch Products Ltd., Ahmedabad | Bombay to Ahmedabad | 22 13 9 | 18 4 7 | 18 2 0 | 14·07 |
| 9. | Mysore Chemicals & Fertilisers Ltd., Mysore | Madras to Belagula | 24 1 0 | 24 1 0 | 18 15 6 | 14·76 |
| 10. | Premier Chemical Industries, Mysore | Madras to Mysore | .. | .. | 19 14 6 | 12·00 |
| 11. | Eastern Chemical Co., Bombay | Bombay to Vadala | 1 8 0 | 1 8 0 | 1 8 0 | 1·11 |
| 12. | Western Chemical Industries, Bombay | .. | .. | .. | .. | — |
| 13. | Phosphate Co., Ltd., Calcutta | Calcutta to Rishra | .. | .. | 7 8 0 | 4·52 |

*(c) Statement showing incidental charges on raw materials and delivery charges on superphosphate for the period 14th March to 31st December, 1950*

| Serial No. | Name of firm | Incidental charges from the nearest railway station to the factory per ton of | | | Incidental charges per ton of superphosphate on sulphur, nitre and rock | Delivery charges from the factory to the nearest railway station |
|---|---|---|---|---|---|---|
| | | Sulphur | Nitre | Rock | | |
| | 1 | 2 | 3 | 4 | 5 | 6 |
| | | Rs. | Rs. | Rs. | Rs. | Rs. |
| 1. | Fertilisers & Chemicals (Travancore) Ltd., Alwaye | .. | .. | .. | .. | 5·50 |
| 2. | Parry & Co., Ltd., Madras | 2·90 | 2·90 | 2·90 | 2·23 | 1·90 |
| 3. | Dharamsi Morarji Chemical Co. Ltd., Bombay | 3·00 | 3·00 | 3·00 | 2·31 | 3·00 |
| 4. | D. C. M. Chemical Works, Delhi | 9·83 | 9·83 | 6·85 | 5·70 | 5·50 |
| 5. | Hyderabad Chemicals & Fertilisers Ltd., Balampalli | 3·84 | 3·47 | 3·47 | 2·73 | 3·54 |
| 6. | Sonawala Industries Ltd., Bombay | 2·75 | 2·75 | 2·75 | 2·12 | 3·00 |
| 7. | National Fertilisers Ltd., Poona | .. | .. | 8·00 | 4·99 | 7·38 |
| 8. | Anil Starch Products Ltd., Ahmedabad | 6·45 | 7·95 | 5·00 | 4·06 | 5·00 |
| 9. | Mysore Chemicals & Fertilisers Ltd., Mysore | 2·50 | 2·50 | 2·50 | 1·92 | 1·50 |
| 10. | Premier Chemical Industries, Mysore | .. | .. | 5·00 | 3·12 | 5·00 |
| 11. | Eastern Chemical Co., Bombay | 5·20 | 5·20 | 5·20 | 4·00 | 4·38 |
| 12. | Western Chemical Industries, Bombay | 5·20 | 5·20 | 5·20 | 4·00 | 4·38 |
| 13. | Phosphate Co. Ltd., Calcutta | .. | .. | 3·00 | 1·87 | 3·50 |

*(d) Statement showing incidental charges on raw materials and delivery charges on superphosphate for the year ended 31st December, 1951*

| Serial No. | Name of firm | Incidental charges from the nearest railway station to the factory per ton of | | | Incidenta charges per ton of Superphosphate on Sulphur, nitre and rock | Delivery charges from the factory to the nearest railway station |
|---|---|---|---|---|---|---|
| | | Sulphur | Nitre | Rock | | |
| | 1 | 2 | 3 | 4 | 5 | 6 |
| | | Rs. | Rs. | Rs. | Rs. | Rs. |
| 1. | Fertilisers & Chemicals (Travancore) Ltd., Alwaye | .. | .. | .. | .. | 5·50 |
| 2 | Parry & Co. Ltd., Madras | 3·35 | 3·35 | 3·35 | 2·48 | 1·90 |
| 3. | Dharamsi Morarji Chemical Co. Ltd., Bombay | 3·00 | 3·00 | 3·00 | 2·22 | 3·00 |
| 4 | D. C. M. Chemical Works, Delhi | 9·83 | 9·83 | 6·85 | 5·49 | 5·50 |
| 5 | Hyderabad Chemicals & Fertilisers Ltd., Belampalli | 3·84 | 3·47 | 3·47 | 2·62 | 3·54 |
| 6 | Sonawala Industries Ltd., Bombay | 2·75 | 2·75 | 2·75 | 2·04 | 3·00 |
| 7. | National Fertilisers Ltd., Poona | .. | .. | 8·00 | 4·82 | 7·38 |
| 8. | Anil Starch Products Ltd., Ahmedabad | 6·45 | 7·95 | 5·00 | 3·92 | 5·00 |
| 9. | Mysore Chemicals & Fertilisers Ltd., Mysore | 2·50 | 2·50 | 2·50 | 1·86 | 1·50 |
| 10. | Premier Chemical Industries, Mysore | .. | .. | 5·00 | 3·02 | 5·00 |
| 11. | Eastern Chemical Co., Bombay | 5·20 | 5·20 | 5·20 | 3·86 | 4·38 |
| 12. | Western Chemical Industries, Bombay | 5·20 | 5·20 | 5·20 | 3·86 | 4·38 |
| 13. | Phosphate Co. Ltd., Calcutta | .. | .. | 3·00 | 1·81 | 3·50 |

## APPENDIX VIII

[*Vide* Paragraph 7(g)(iii)]

*Statement showing the extra cost of Sulphuric Acid incurred per ton of Superphosphate by the non-producers of acid for—*

(i) *14th March to 31st December, 1950.*

(ii) *Calendar year 1951.*

| | National Fertilizers, Ltd., Poona | Phosphate Co. Ltd., Calcutta | Premier Chemicals, Mysore |
|---|---|---|---|
| (*i*) ***For 14th March to 31st December 1950—*** | **Rs.** | **Rs.** | **Rs.** |
| **(a) Present rate paid for acid up to the factory gate . . .** | **224** | **203** | **204** |
| **(b) Basic price adopted . .** | **145** | **145** | **143** |
| **(c) Excess cost per ton of acid .** | **79** | **58** | **61** |
| **(d) Excess cost per ton of super ('C'×0·4) . . . .** | **31·6** | **23·2** | **24·4** |
| (ii) ***For the year 1951—*** | | | |
| **(a) Extra cost of acid per ton of super in 1951 based on the price paid in 1950 . . . .** | .. | (58×0·38) =22·0 | (61×0·38) =23·2 |
| **(b) Extra cost of acid over (ii) (a) above due to increase in price of Sulphur* . . . .** | .. | 11·6 | 11·6 |
| **(c) Total extra due in 1951 .** | .. | **33·6** | **34·8** |

***For January/June 1951 only.**

# APPENDIX IX

(*Vide* para 6)

## Memorandum submitted by superphosphate manufacturers on revision of superphosphate prices for the period 1st January 1950 to 30th June 1951.

We the Superphosphate Manufacturers have met together to review the actual costs of production of Superphosphate as per the terms of reference made to the Indian Tariff Board by the Ministry of Agriculture for the periods

(A) 1st January 1950 to 30th June 1950.

(B) 1st July 1950 to 30th June 1951.

For the reasons which will appear later in the body of this memorandum we wish to recommend to the Indian Tariff Board that in respect of period B above a separate price be fixed for the first six months of 1951 and that the price for 1950 should be the same throughout.

2. *Review of price for January to June* 1950.—The review we have carried out has been on the basis of the figures arrived at by the Cost Accounts Officer for the first six months of 1950 and also taking into account the costs of such factories as have not been audited. It would seem from our conclusions that the voluntary reduction of Rs. 14 by most of the manufacturers in March appears to have been premature.

We now deal with the actual costing taking as our basis the 1949 report of the Indian Tariff Board.

(*i*) **Basic Raw Material Costs :**

| | Rs. | A. | P. |
|---|---|---|---|
| (*a*) *Sulphur.*—The actual C. I. F. port cost of sulphur varies from Rs. 155 to Rs. 185. After discussion, it was found that a fair average C. I. F. cost for sulphur for the year was . . . . . . . . . . | 170 | 0 | 0 |
| Clearing and bagging charges in Bombay (main port of entry) . | 21 | 0 | 0 |
| Handling and transport wastages at 1 per cent. (a prox.) . | 2 | 0 | 0 |
| | 193 | 0 | 0 |
| (*b*) Nitrate of Soda from Government Stockists . . . | 378 | 0 | 0 |
| | F. O. R. Bombay. | | |
| (*c*) *Rock phosphate.*—The bulk of the phosphate used by the industry this year has been supplied from Egypt and has been of 65/66 per cent. grade. The average price has been Sh. 90 C. I. F. per ton *i.e.*, . . . . . . | 60 | 0 | 0 |
| Clearing and bagging charges at Bombay . . . . | 20 | 0 | 0 |
| Handling and transport losses at 2½ per cent. . . . . | 2 | 0 | 0 |
| Grinding charges . . . . . . . . . . . | 15 | 0 | 0 |
| Grinding and storage wastage at 2½ per cent. . . . . . | 2 | 8 | 0 |
| | 99 | 8 | 0 |

### (ii) Proportions of raw materials for final product:

(a) *Acids*:

*Sulphur.*—In actual practice it is found that the average of acid manufactured either by the chamber or the contact process requires 0·36 tons of sulphur per ton of 100 per cent. acid produced.

*Nitrate of Soda.*—Because of more continuous operation of the Chamber acid plants in the course of this year a reduction in nitrate consumption is possible over the figures given by the Indian Tariff Board last year. These figures now are 6 per cent. for plants with towers and 12 per cent. for plants without towers as compared with 8 per cent. and 16 per cent. respectively.

(b) *Superphosphate*:

*Rock Phosphate.*—Last year the costing was calculated on the basis of Moroccan Rock Phosphate which analysed 73/74 per cent. tricalcic phosphate. Except for the early part of the year this phosphate was not used and Egyptian Phosphate of average quality 65/66 per cent. tricalcic phosphate took its place. The proportion of this lower grade phosphate for production of 16 per cent. water soluble P205 Superphosphate is 0·608 tons of phosphate per ton of superphosphate. (Please see appendix).

*Acid.*—In view of the lower grade of rock phosphate it is necessary to use 0·3976 tons of acid to produce Superphosphate of 16 per cent. water soluble P205.

### (iii) Actual cost of various products:

| A. *Sulphuric Acid* (*chamber process*) . . . . . | With towers. |
|---|---|
| 1. Raw Materials | Rs. |
| (*a*) Sulphur 0·36 tons at Rs. 193 . . . . . . | 69·48 |
| (*b*) Nitre 0·0216 tons at Rs. 378 . . . . . . | 8·16 |
| 2. Conversion charges . . . . . . . . . . | 45·00 |
| 3. Fixed charges as per item 3 Table IV, Indian Tariff Board Report 1949 . . . . . . . . . | 35·00 |
| 4. Total price per ton of acid . . . . . . | 157·64 |

For plants without towers the nitre used is ·0432 tons which increases the total cost to Rs. 165·80.

NOTES

*Conversion charges.*—The actual conversion charges as ascertained from various Superphosphate manufacturers vary from Rs. 36·5 to 53·5 per ton. We consider that Rs. 45 is a fair average for the industry. The slight increase over the last year's figure is due to, principally, increases in labour costs and extra charges for stores and other spares.

*Fixed charges.*—As per item 3 in table 4 of the Indian Tariff Board Report 1949, this is Rs. 35. We suggest the same figures as last year as any possible reduction in the present charges is offset by increased interest charges on account of larger stocks of sulphur, higher cost of spares and stores.

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**B.** *Sulphuric Acid Cost (contact plant):*

| | Rs. |
|---|---|
| 1. Raw materials—Sulphur ·36 tons × 193 | 69·48 |
| 2. Conversion charges | 45·00 |
| 3. Fixed charges | 35·00 |
| Total cost | 149·4 |

NOTES

(i) *Conversion charges.*—The figures of Rs. 45 is a fair average of experience ranging from Rs. 34·26 to Rs. 65.

(ii) *Fixed charges.*—Same comments as under chamber acid.

From these figures it is possible to proceed to work out the ex-factory price of Superphosphate on a theoretical basis for a port factory.

Adopting the basis of Table V of the Indian Tariff Board Report of 1949, this cost works out as follows:

| | Contact acid Rs. | Chamber acid Rs. |
|---|---|---|
| 1. *Raw Materials:* | | |
| (a) Rock phosphate ·608 × 99·5 | 60·496 | 60·496 |
| (b) Sulphuric acid: | | |
| ·3976 @ 149·48 | 59·433 | — |
| ·3976 @ 157·645 | .. | 62·679 |
| | 119·929 | 123·175 |
| 2. Conversion charges | 28·000 | 28·000 |
| 3. Packing charges | 29·500 | 29·500 |
| 4. Interest, etc. | 21·500 | 21·500 |
| 5. Propaganda charges | 5·000 | 5·000 |
| Total cost | 203·929 | 207·175 |

NOTES

1. *Conversion charges.*—The variations in actual cost is from Rs. 22 to Rs. 47 per ton. The figure above is regarded as a fair average.

2. *Freight from Factory to Station.*—Omitted for the reasons given below.

3. *Fixed charges.*—Last time the Industry had demanded interest at Rs. 10-8-0 against which the Tariff Board allowed Rs. 3. In practice it has been found that due to irregular lifting and delayed payments by the Government, the actual costs have been lower than Rs. 7·5 per ton on the basis of

(a) Superphosphate being kept in stock on an average of 4 months.

(b) Factories waiting for 3 months for payment of bills.

(c) Rock phosphate being kept on an average of 6 months before manufacture.

We calculate that 3/5th of the Superphosphate produced in 1950 was from Chamber Acid and the balance from Contact Acid and we suggest that a weighted average of the above two figures should be taken to arrive at the average selling price of superphosphate.

3. *Uniform price of Superphosphate.*—We recommend a change in the basis of price fixation. In 1949, the Tariff Board fixed one price for so-called port factories. In respect of factories situated in the interior, separate prices were fixed to include allowance for freight charges on sulphur and rock phosphate. A change in procedure is suggested for the following reasons:

1. The so-called port factories were not at ports and incurred varying charges on their raw materials.
2. For inland factories, the actual railway freights were not calculated in detail but estimated.
3. There were factors affecting particular factories other than railway freight such as terminal tax charges as well as freight on Nitrate of Soda.
4. The actual transport charges on Superphosphate from factory to F.O.R. should be taken as an average is difficult to strike. The same applies to incoming raw materials from station to the factory.
5. In the case of such factories as are continuing too purchase acid outside but who are putting up their own acid plant shortly, it is recommended to add the necessary extra cost on account of the freight of the acid.

For all these reasons, we recommend that the Tariff Board fix one theoretical ex-factory port price excluding allowance for any of the 5 items above. It would be a relatively simple matter for the Cost Accounts Officer to calculate exactly the extent of the following charges in respect of each factory and to add a single lump sum in respect of each factory to the all-India Theoretical Port Price. We give below the items to be included in this lump sum:

(a) Railway freight on

·608 tons of rock phosphate

·143 tons of sulphur

·009 tons of Nitrate of Soda (·018 for non-tower factories).

(b) from port to factory railway station.

(c) Transport charges from factory railway station to factory on quantities in (a).

(d) Transport charges from factory to railway station on Superphosphate.

(e) Terminal tax, Sales Tax, Octroi or any other tax where applicable on above-mentioned quantities of raw materials and Superphosphate.

4. *Review of prices for first half of the period July* 1950 *to June* 1951.—The ex-factory prices of the theoretical port factories, as arrived at above for the period 1st January—30th June 1950 are—

For Superphosphate made from Chamber acid -Rs. 207·1 per ton.

For Superphosphate made from Contact Acid -Rs. 203·9 per ton.

We feel that these apply equally well to the period July/December 1950 as there is no significant change in costs. It is to be considered by the Indian Tariff Board whether the factories which voluntarily decided to invoice Government at Rs. 196 should not now be given the benefit of any revision in price decided upon by the Indian Tariff Board. The reduction in price was made on an estimated output with cheaper Egyptian phosphate. The use of this phosphate meant a reduction in cost which theoretical calculations suggested. At that time it was represented to the Industry by the Ministry of Agriculture that the demand for Superphosphate was being retarded by its price and a reduction in price should stimulate demand. In an attempt so to increase demand the manufacturers reduced their price more than was warranted by actual experience.

It is satisfactory that the Ministry of Agriculture requested the Indian Tariff Board to review prices as this has saved the industry from making its own request for a revision of prices.

5. *Estimated cost for January/June* 1950.—On account of alterations in the cost and quality of basic raw materials which will be felt early in 1951, it is necessary to recommend a different price to be fixed for the above period. Apart from the consequential alterations on account of these factors, we do not recommend any other changes in the general price structure.

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(a) *Sulphur.*—In the last six months the world supply situation has drastically deteriorated. On account of the unprecedented increase in the internal demand in the U.S.A. and a growing realisation that the reserves of sulphur in U.S.A. are not inexhaustible, the quantity of sulphur being made available by the U.S.A. for export is being drastically reduced. For the last three months, no purchases of American sulphur have been possible. Manufacturers have learnt from various sources that American producers are not yet willing to enter into any forward commitments for 1951. The Government of India in several Ministries have been exerting their best efforts for the last two months to secure a release of adequate quantities of American Sulphur said to be surplus for domestic needs, but without any success.

It is understood that U.S.A. producers have informed their customers in Britain and the Continent of their intention to reduce supplies in 1951 to 400,000 tons against deliveries of 800,000 tons in 1950. If the same basis should apply to India, we should not expect more than 25,000 tons in 1951 as against an estimated demand of 60,000 tons. As far as can now be ascertained, such limited quantity as could be exported to this country will be ready for shipment only after April 1951 and would not be in the hands of the manufacturers till July 1951.

So far as can be ascertained, Superphosphate manufacturers do not have stocks of sulphur which will last them beyond February 1951. The only alternative source of supply is Italian sulphur which is more than double the cost of American sulphur. Upto recently, ample Italian sulphur was available but we have been informed that it would be increasingly difficult to secure supplies from this source also, in view of the demands now being made on Italy from the Continent, Australia and other countries previously dependent on the U.S.A.

Most of the large manufacturers have recently purchased Italian sulphur at £22-13-9d. per short ton F.O.B. Sicillian port (98 per cent. grade only was available) and it is expected that other manufacturers will shortly follow suit. The total cost of this sulphur C.I.F. Bombay is expected to be Rs. 409. The equivalent price of 99·5 per cent. sulphur would be Rs. 415 per long ton.

Working on the basis of using American sulphur at Rs. 170 C.I.F. for 2 months and Italian sulphur at Rs. 415 for 4 months the average cost of sulphur will be Rs. 333 per ton C.I.F. On account of this factory, the Superphosphate cost would be increased by Rs. 59·3424 per ton.

(b) *Rock Phosphate.*—On account of the increase in demand from Japan for Egyptian Phosphate, it is no longer possible to purchase a grade higher than 63/65 per cent. tricalcic phosphate from Egypt, which grade is now available at almost the same F.O.B. price for 1951 as for the 65/66 per cent. grade in 1950. There has been an appreciable increase in freight in recent months arising out of the situation created by the Korean War. The freight from Egypt to main Indian ports is now quoted at 50 shillings per ton as against 35 shillings six months ago. On account of this, the cost of rock phosphate will have to be revised as from January 1951 to Sh. 102 C.I.F. as against Sh. 90.

The increase per ton of Superphosphate by this factor would be Rs. 7·22, taking account also of the slightly higher quantities of phosphate needed of the lower grade.

(c) *Acid.*—With this lower grade of phosphate, it is necessary to use an additional quantity of acid, ·411 tons of acid per ton of phosphate. The incidence of higher cost of phosphate and higher quantities of materials to be used is shown in the statement attached.

(d) *Packing.*—The price of gunnies has recently risen and new 'B' twills are quoted at Rs. 185 per 100 compared with about Rs. 160 six months ago. Second-hand gunnies have risen a like amount. Manufacturers will be able to manage till the end of this year on the existing allowance because gunny stocks bought earlier this year were somewhat cheaper and can be averaged out. From January 1951, the manufacturers will per-force have to use the higher priced gunnies and it is estimated that packing will cost Rs. 34:5 per ton as follows:—

| | Rs. |
|---|---|
| 10 New 2 cwt gunnies . . . . . . . | 16·5 |
| 10 Second-hand 2 cut gunnies . . . . . . | 14·0 |
| Labour charges for packing . . . . . . . | 2·0 |
| | 34·5 |

This increased figure is shown in the statement.

*Propaganda Expenses.*—When the Superphosphate manufacturers met the Hon'ble Minister for Agriculture in Delhi in June, they were requested to subscribe to an organisation the objects of which should be to expand the demand for Superphosphate. The manufacturers have been discussing the formation of a Development Board and the details of the organisation and the work to be done have been worked out We have, however not been able to proceed with the formation of the Board, for economic reasons particularly after the voluntary reduction and as no allowance was made for this item by the Indian Tariff Board in their last report.

From experience, it is felt by the manufacturers that the demand for Superphosphate will be stimulated by suitable propaganda even if it means a slight increase in cost. They urge the Indian Tariff Board to give an allowance of Rs. 5 per ton for this purpose. This will enable the trade to develop the demand for its product against the time when it is decontrolled.

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# APPENDIX A

*Statement showing how we have arrived at the raw material consumption proportion of Rock Phosphate and Sulphuric Acid using 63 per cent Phosphate.*

63 per cent Rock *Dry Basis* = 28·854 $P_2O_5$
Less for 4 per cent moisture = 01·154 „
Nett available for conversion = 27·700
92 per cent conversion = 25·48
Therefore, 16 per cent Super = 1·592 times
=0·628 Rock for 1 ton Super.

---

| | Percent | Acid Required |
|---|---|---|
| Insolubles . . . . . . . . | 7·5 | .. |
| Ca(Po$_4$)2 . . . . . . . . | 63·0 | 40·0 |
| Ca Co$_3$ . . . . . . . . | 13·33 | 13·06 |
| Feral ($\frac{1}{2}$Al$_2$0$_3$, $\frac{1}{2}$ Fe$_2$0$_3$) . . . . . | 1·2 | 2·68 |
| MgO . . . . . . . . . | 0·7 | 1·76 |
| CaF$_2$ . . . . . . . . . | 6·3 | 1·90 |
| Organic matter . . . . . . | 7·97 | .. |
| | 100·00 | 65·4 |

∴ 1 ton Super requires
0·628 Rock
0·411 Acid 100 per cent basis.

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## APPENDIX B

*Statement showing how we have arrived at the raw material consumption proportion of Rock Phosphate and Sulphuric Acid using 65% Phosphate.*

65% Rock *Dry Basis* =29·77 $P_2O_5$
Less for 4 per cent moisture = 1·19 ,,
Nett Available for conversion =28·58
92 per cent conversion . =26·29
Therefore, 16 per cent Super =1·643 times

=0·608 Rock for 1 ton Super.

| | Percent | Acid Required |
|---|---|---|
| Insolubles . . . . . . . | 7·5 | |
| $Ca_3(Po_4)2$ . . . . . . . | 63·0 | 40·0 |
| Ca $Co_3$ . . . . . . . . | 13·33 | 13·06 |
| Feral ($\frac{1}{2}Al_2O_3$, $\frac{1}{2}$ $Fe_2O_3$) . . . . . | 1·2 | 2·68 |
| Mgo . . . . . . . . | 0·7 | 1·76 |
| $CaF_2$ . . . . . . . . | 6·3 | 7·90 |
| Organic Matter . . . . . . | 7·97 | |
| | 100·00 | 65·4 |

∴ 1 ton Super requires
0·608 rock
0·3976 Acid 100 per cent basis.

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## APPENDIX C

*Statement showing total Manufacturing cost per ton of Sulphuric Acid (100 per cent.) by the Chamber Process.*

1951 (Six months)

*Raw Materials*

| | |
|---|---|
| (a) Sulphur | 128·8224 |
| (b) Nitrate of Soda | 8·1648 |
| Total raw materials | 136·9872 |
| Conversion charges | 45·0000 |
| Fixed charges | 35·0000 |
| Total cost | 216·9872 |

*Sulphur*

| | |
|---|---|
| Quantity used | tons 0·360 |
| Rate per ton | Rs. 357·84 |

*Details of rate*

| | |
|---|---|
| 2 Months American Sulphur | @170 per ton |
| 4 Months Italian Sulphur | @409 per ton |
| Plus Rs. 6 for lesser purity | @415 per ton |

| | Rs. |
|---|---|
| Therefore, average per month | 333·33 |
| Add clearing charges (including bags) | 21·00 |
| 1 per cent wastage | 3·5 |
| Total | 357·84 |

*Nitrate of Soda.*

| | |
|---|---|
| Quantity used | tons 0·0216 |
| Rate per ton | Rs. 378·6 |

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## APPENDIX D

*Statement showing total Manufacturing cost per ton of Sulphuric Acid (100 per cent.) Contact Process.*

1951 (Six months)

| | |
|---|---|
| *Raw Materials.* | |
| (a) Sulphur . . . . . . . | 128·8224 |
| Conversion Charges . . . . . | 45·00 |
| Fixed Charges . . . . . . | 35·00 |
| Total . . . | 208·8224 |
| *Sulphur* | |
| Quantity . . . . . . | Tons 0·360 |
| Rate per ton . . . . . . | Rs. 357·84 |

Details of rate are as given in the Chamber Statement.

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## APPENDIX E

*Statement showing total Manufacturing cost of Superphosphate per ton 16 per cent $P_2O_5$.*

1951 (Six months)

*Raw Materials*

| | Using Chamber Acid | Using Contact Acid |
|---|---|---|
| (*i*) Rock Phosphate | 67·717 | 67·717 |
| (ii) Sulphuric Acid | 89·182 | 85·826 |
| Total raw materials cost | 156·899 | 153·543 |
| Conversion charges | 28·000 | 28·000 |
| Packing charges | 34·500 | 34·500 |
| Interest etc. | 21·500 | 21·500 |
| Propaganda charges | 5·000 | 5·000 |
| Total cost | 245·899 | 242·543 |

*Raw Materials*

(1) Rock Phosphate (63 per cent Tricalcium Phosphate)

| | |
|---|---|
| Quantity | Tons 0·628 |
| Rate | Rs. 107·830 |

*Details of rate*

| | |
|---|---|
| Kosseir Rock, cost per ton, c.i.f.—102 Sh. | 68·00 |
| clearing charges | 20·00 |
| | 88·00 |
| 2½ per cent wastage | 2·20 |
| Grinding charges | 15·00 |
| Grinding wastage 2½ per cent | 2·63 |
| Total | 107·83 |

2. *Sulphuric Acid*

Quantity—tons

| | |
|---|---|
| Rate of chamber acid | Rs. 216·9871 |
| Rate of contact acid | Rs. 208·8224 |

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GIPD—L—148 CP—14-3-52—665

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